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THE STREPTOCOCCUS IN THERAPEUTICS.

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The streptococcus or chain coccus, is not far behind the bacilli of tuberculosis, diphtheria, and typhoid fever, in its antagonism to mankind, and in the frequency of its occurrence in pathological conditions. In fact, when these bacilli are found, it is commonly found also, as an associate and co-worker. Some of their worst complications and most baneful sequelæ are due to its presence; and in treating such diseases by antitoxin therapy, this fact should be borne in mind.

The role of the streptococcus in human pathology has been so varied, as to lead to the supposition that there are many distinct forms. The opinion most prevalent at present, however, is that there is but one species, "streptococcus pyogenes." Diversity of lesion does not prove diversity of agent; but may be due to several factors, viz: (*a*) Variability in virulence of the microbe. (*b*) Variability in site and depth of infection. (*c*) Variability in resistance of the body. In advanced diabetes and in chronic nephritis, far more serious results follow streptococcus invasion than in the healthy body. (*d*) Association with other microbes—so-called "polymicrobic infection."

Whence come these cocci? It is often impossible to tell, but frequently the origin appears exogenous. The virulence of the streptococcus appears at times to be greatly increased by the presence of other microbes; or may it be that the apparently increased virulence is due to diminished resistance on the part of the body because of the primary infection?

The success attending serum therapy in diphtheria and tetanus has led observers to turn their attention to diseases due to, or complicated by streptococci. To find a serum treatment for such conditions as puerperal fever, erysipelas, and some of the complications of scarlatina, diphtheria, typhoid fever, and tuberculosis, would be to greatly aid in their curability, if not to entirely eradicate them.

Such a serum would evidently have an exceedingly wide range of usefulness.

In preparing the serum, much difficulty was at first experienced, and indeed, it is questionable whether a really satisfactory article has yet been made. Parke, Davis & Co. have labored with this problem, and have now placed before the profession an erysipelas toxin, a prodigiosus toxin, a mixture of the two, and a serum from sheep inoculated with erysipelas. In preparing the serum, they make a virulent bouillon culture of erysipelas, and inject this into the femoral vein of a healthy sheep. After eight days, the blood is drawn, the serum separated, 0.4 per cent. trikresol added, and the whole then filtered.

The streptococcus does not readily give off its toxin to the surrounding liquid. To obtain the toxic properties, you must use the germ itself for immunizing. In streptococcus infections, the germ itself is found in the blood and tissues; whereas, in diphtheria, only the toxins are found away from the seat of inoculation; hence only these have to be combatted.

Experimental investigation at the Pathological Institute of Padua University, have shown that alternating electric currents of high tension are capable of rendering innocuous the most virulent cultures, without modifying the chemic reaction of the cultures or the form of the germs. The current acts on the dissolved toxins rather than upon the germs, which retain their power when inoculated upon new media to develop with all their previous rapidity and pathogenic activity. The streptococcus is capable of preserving its vitality for two weeks in the electrified culture; but the toxins are changed to antitoxins.

As this subject is a comparatively new one, and as but little has as yet been written upon it, I have taken the liberty of incorporating herein, the following clinical reports, culled from recent journals. Although such evidence does not, of itself, furnish conclusive proof as to the efficacy of this line of therapy, it is only by collective data that we are enabled to judge as to the advisability of further experimentation in the same line. The records below seem to me to justify the expectation that, with improved laboratory methods in its manufacture, and greater precision as to dosage and selection of cases, it will prove of priceless value, and to have even a wider range of usefulness than the other serums.

A number of observers have noted improvement, and occasionally recovery, in cases of malignant tumors, when intercurrent attacks of erysipelas occurred. Hence inoculations have been made experimentally in the region of such tumors. There were so many unpleasant results, however, from these experiments, that Coley, in 1894, modified the treatment by using the toxins only, and a number of good results were reported. Later, a further modification was tried, in the shape of a mixture of toxins from the streptococcus and bacillus prodigiosus, with still better results. His conclusions were accordingly favorable, especially for sarcomata.

Emerich and Scholl, in Germany, claimed equally remarkable results with the same treatment; but unfortunately, others have been unable to corroborate their experience.

For puerperal fever, the serum of streptococcus-immunized animals has been used extensively in the hospitals of Paris. They have used the same serum in scarlatina, when complications due to streptococcus invasion existed, and in other affections due to the same cause; since it has been shown that the serum of an animal made immune by the injection of the germs or toxins obtained from any one of these diseases, is antitoxic to the whole group of streptococci.

Litrain describes the following case in the *Progrés Médicale*: "Madame R——, age 25; confined February 7, 1896, by a midwife. February 10th, severe rigor. February 13th, was called in. Diagnosed puerperal sepsis. Apparent source of infection, an adjoining privy. February 15th. Patient worse; semi-delirious; temperature 104.7° F.; pulse 150, small and compressible; abdomen swollen and very tender; tongue dry; fetid diarrhea. The case seemed too far gone for curetting the uterus. Telegraphed to the Pasteur Institute for antistreptococcic serum. February 16th. Temperature 104.3° F.; pulse 148; injected 5 c.cm. of serum. February 17th. Temperature 101.3°; pulse 120; injected serum. February 18th. Temperature 100.4° pulse 110; injected 5 c.cm. February 19th. Temperature 104°; pulse 130; pain and local inflammation at seat of injection. February 20th. Fourth injection; temperature 98.2°; pulse 80; patient feels well. February 22d. Another 5 c.cm. injected; temperature 98.6°; pulse 70; abdomen apparently normal; diarrhea gone; good appetite. The sixth injection of 5 c.cm. was given, and henceforth the case progressed most favorably."

When serum treatment is to be employed it must be used "early and often." In puerperal fever the septic absorption is not due altogether to the streptococcus; but such observers as Patru, Maillart, and Ribemont have noted distinct improvement in many cases where entire cure was not effected.

A case of diplo-streptococcic infection, treated by Marmorek's serum, is related by Dr. A. J. Richer, of Canada. His report is as follows: "December, 1896, delivered Mrs. L—— of her fourth child; transverse position; turning under anesthesia. Delivery by the feet was accomplished after a great deal of effort, resulting in the death of the child. Placenta expelled entire; no lacerations; mother much exhausted, hence no intrauterine douche given for seven hours. Two months before, one of the children developed scarlatina, but was at once removed, and the house disinfected. First four days after confinement temperature rose daily a little higher until it reached 103° F. in the morning and 105° in the evening. Lochia scanty, and with slight odor; found to contain large numbers of streptococci and diplococci, but no other bacteria. Patient had headache and chill; vulva and cervix hyperemic; abdomen not much distended nor sensitive. On evening of fourth day, gave an injection of 10 c.cm. Marmorek's serum. Next morning temperature fell to 101°; evening temperature 103°. Fifth day, morning temperature 102°, evening temperature 103°. Gave another injection of 5 c.cm. Twelve hours later, temperature 98°. Next two days temperature ranged from 98° to 100°. Ninth day—Morning temperature 103°, evening temperature 103.8°; gave 4 c.cm. serum. Following the third injection an absence of streptococci, but a persistence of diplococci was noted in the discharges. Various bacilli was also present. From the twenty-first day the temperature remained about normal, and patient made a slow but good recovery. An interesting fact in connection with this case was the development in her boy of 7 years, on the sixth day after confinement of a facial erysipelas.

Dr. R. R. Law reports in the *British Medical Journal*, a case of acute septic general peritonitis with septic metritis, treated by antistreptococci serum. The following is the record: "A young woman, married three weeks, with normal menstrual history, was seized with memorrhagia for nine days. Much pain in lower part of abdomen; slight diarrhea and tenderness, especially over left ovary; cervix and body of uterus slightly enlarged and tender; temperature 100° F. There was a history of exposure to cold and fatigue at the beginning of a menstrual period. Ordered rest, hot fomentations and opium. In three days the temperature and pulse were normal, and the flow ceased. Four days after the attack began symptoms of general peritonitis rapidly developed. The temperature rose, the pulse became rapid and wiry; diarrhea returned, and a profuse vaginal discharge, tinged with blood, appeared; uterus soft, tender and enlarged; cervix swollen to twice its normal size. Ordered hot fomentations, douches, stimulants, etc. Temperature rose to 104.5°; 3 c.cm. antistreptococcus serum injected. Prior to the injection the tongue was furred, breath offensive, temperature 101°, pulse 116, small and thready; respiration 32, abdomen distended, tympanitic and tender; slight swelling in the left ovarian region. One hour after the injection the temperature was 98°, pulse 92, and better volume. On the following day 4 injections of 3 c.cm. each were given, with the same favorable results. Highest temperature 100°; slight diarrhea continued; peritoneal friction note heard all over the abdomen. During the next three days injections amounting to 55 c.cm. were given. Improvement continued. Two weeks later all symptoms had disappeared except tenderness of left ovarian region. Recovery after a short time.

In the study of the pathogenesis of tubercular processes, the presence and activity of germs, other than the specific bacillus of Koch, have not been given sufficient importance. The tubercle bacillus determines the general character of the disease, and begins the inflammatory action, but tuberculosis is not itself a suppurative process, and pus means secondary infection, and a more rapidly destructive process than the primary affection. After the early stages of tuberculosis, the disease is especially rebellious to treatment, and largely because of streptococcus invasion, which is the principal cause of cavity formation, and the earlier this secondary infection occurs, the more rapid the "consumption." Marmorek's serum combats this microbic invasion, and is harmless to the patient. Its action is very quick, and both temperature and expectoration are markedly reduced in a few days. It is claimed that it reduces in two weeks the amount of expectoration 50 to 75 per cent., besides decreasing its purulent character. Improvement in every way occurs, and the earlier its use the better the results.

Dr. W. H. Weaver, of Chicago, reports the following cases:

CASE 1. Mrs. N. D——, age 28; case of rapid phthisis, with extensive cavity formation in the right lung, and consolidation of the left upper lobe Sputum almost like a pure culture of tubercle bacilli. June 25th. Antistreptococcus serum given, and repeated every second day for three doses. After this the temperature remained below 100° F. for two weeks, and expectoration and cough much reduced. General condition greatly improved by the serum treatment.

CASE 2.—H. C——, age 20; consumption of six years' duration; large cavity in right lung; constant cough and expectoration; emaciation and anorexia; multiple inflammatory foci appeared about the face, scalp and neck. These disappeared after one injection of serum; temperature reduced from over 101° to below 100° F., expectoration greatly diminished, and considerable general improvement established.

CASE 3.—Mr. E. E——, age 22; had consumption about a year, affecting the right upper lobe; tubercular diarrhea for one month. Serum treatment reduced cough and expectoration about one-half, and greatly relieved the patient's condition up to his death, two weeks later.

All that is claimed for antistreptococcus serum in tuberculosis, is relief of symptoms due to complicating purulent processes, but the evidence just cited would seem to prove its efficacy as an aid to specific treatment, and general hygienic measures.

Similarly the use of Marmorek's serum is advocated in scarlatina for the complicating otitis purulenta, nephritis, endocarditis and pseudo-membranous angina, all of which are ascribed to the streptococcus invasion.

In the Boston City Hospital, 103 cases of scarlatina entered. Of these 96 were treated with the serum, in doses of 10 c.cm. daily. Streptococci were found in all daily; 17 were complicated with diphtheria, and were treated with the double serum. The most marked effect was in cases with enlarged glands, 19 occurring without suppuration; 4 entered with otitis, but rapidly recovered.

Baginsky, of Berlin, treated 48 cases, several of whom had enlarged glands, which suppurated. The mortality was 14 per cent., while the previous mortality was 22 to 30 per cent. He merely says in his conclusions that the results were not more unfavorable than without it.

Marmorek treated, from October 16th to December 31, 1895, 95 children with the serum. Ten to 30 c.cm. were injected in ordinary cases, and 48 to 80 in the severe ones. The effect on the lymphatic enlargement was especially noteworthy; 19 cases resolved without suppuration. Four cases of double otitis were promptly controlled, while in one other it developed in spite of the serum, but soon ceased. Grave complications were prevented, and false membrane and delirium rapidly disappeared. The author concludes that such results justify his belief that the remedy will render real service in the treatment of scarlatina.

Josias treated 49 children, giving an average dosage of 5 c.cm. No bad symptoms observed from the injections. At another period he injected 96 children, with an average dosage of 10 c.cm. Some, however, receiving in all 90 c.cm. The second lot of cases were injected with horse serum, the first lot with sheep serum. Streptococcus abscesses formed at the seat of inoculation in four patients, lymphangitis in eight, polymorphic eruptions in ten, and purpura in seven cases. He concludes that pseudo-membranous angina, unaccompanied by suppurating glands, improved more quickly than usual. But on suppuration it had no effect, and none on albuminuria, fever, nor the general course of the disease. The mortality in cases treated without serum was 5.8 per cent. In those treated with serum from sheep 2.08 per cent., and in those treated with serum from the horse, 5.31 per cent.

In purulent dacrocystitis, Boucheron has used the serum with success in a case of several years' duration, which had resisted other treatment. The first injection caused great improvement, the second, given two weeks later, was followed by the disappearance of pus from the sac, and at the same time the rhinitis was benefited. The third, given eight days later, completely cured the patient. Boucheron suggests that prophylactic injections should be given when local ocular suppuration is present, and when operations for cataract, etc., are to be performed; also in traumatisms.

Dr. Steele relates, in the *British Medical Journal*, a case of acute spreading gangrene, successfully treated by antistreptococcus serum. A girl, 1½ years old, was burned on the calf of the leg. The wound did not progress well under treatment, and her general health became impaired. In a fortnight a red spot appeared on the forehead, and later became gangrenous; an offensive discharge took place from the nostrils, and profound constitutional symptoms appeared. Ulceration occurred at the site of the burn, on the leg. The gangrenous tissue was removed and nitric acid applied; the ulcer on the leg was curetted and touched with nitric acid. Improvement failing to take place, these operations were then repeated, and later, without success. Injections of 5 c.cm. of antistreptococcus serum were then employed, together with stimulants internally. In the course of a week, distinct improvement was noticable, although suppuration occurred in the right elbow joint, demanding incision and drainage. Ultimately, complete recovery ensued.

Several cases were recently reported to the New York Academy of Medicine, by Drs. Lilienthal, Gerster, and others, where success attended the use of streptococcus antitoxin.

A case of supposed rheumatism of the thigh was admitted to the hospital, and diagnosed by Dr. Lilienthal as a bone disease. The course of the case suggested intense septic infection, with more or less coma and icterus, great pain, partial urinary suppression, and fever. The femur was found to be diseased. No pus in the bony canal, but an abnormal amount of fat. The knee-joint not involved. Some days later, an abscess cavity was opened in the thigh, and streptococci found. The patient's general condition was so poor as to preclude further surgical work. A streptococcus antitoxin injection was given, and after some days the child showed decided improvement, and went on to final recovery. Several doses of Gibier's antitoxin were administered in 8-c.cm. dosage. Dr. Lilienthal considered that the antitoxin had saved the patient's life.

Dr. Gerster considered the case described by Dr. Lilienthal as little short of marvellous. He had used the same serum in several cases at Mt. Sinai Hospital. The first was a boy with very acute osteomyelitis of the femur. General sepsis with multiple abscesses developed. After evacuating the pus, streptococcus antitoxin was administered, and improvement at once began, so that he was soon in condition for amputation. Recovery followed.

The next case was one of gall-bladder distension, peritonitis, and general sepsis. He was operated upon and streptococcus antitoxin used. Patient recovered.

In another case, one of appendicitis, peritonitis, and general sepsis, the antitoxin was used and the patient recovered.

In a case of puerperal sepsis, the large joints involved, being distended with fluid, the patient came to the hospital, with a very unfavorable outlook. Improvement soon followed the use of antitoxin, and subsequent reports showed continued improvement.

Another case of sepsis was reported by Dr. Gerster, in which the serum treatment failed.

Dr. Richards reported a case of puerperal septicemia, of ominous outlook. The uterus was cleaned out and antitoxin given. The patient made no improvement under one brand of serum, but showed rapid improvement, with final recovery, under another.

The conclusion to be drawn from such cases, is apparently favorable to the streptococcus antitoxin, although we should not be too hasty in the matter. Patients now and then recover from general sepsis without such treatment, even though recovery seems impossible.

In the Willard-Parker Hospital, of New York, a careful study of antistreptococcus serum is being made by the Board of Health.

The experience of Marmorek and others abroad, shows it to be of great service in cases of diphtheria, showing the streptococcus as well as the Klebs-Loeffler bacillus. The cocci are most always found in cases which resist diphtheria antitoxin, and in such as show a zone of inflammatory action beyond the area occupied by membrane. Therefore, I believe we should use the streptococcus antitoxin without waiting for the bacteriologist's report, in cases at all rebellious to diphtheria antitoxin.

I also believe that in tuberculosis, with more or less purulent expectoration, antistreptococcic medication should be employed in addition to antitubercular treatment, and to general supportive hygienic and climatological measures.

There is enough evidence to warrant further investigation in scarlatina, septic fever, infective tonsillitis, erysipelas, broncho-pneumonia, and other diseases either due to, or complicated by streptococcic invasion.

CASES OF POLIOMYELITIS.

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Read before the Medical Society of the State of California.

The following cases seem to me to warrant their being reported. Beyond the bare report, but little comment will be necessary. They are all cases of infantile paralysis, acute atrophic spinal paralysis of children, or the paralysis of acute anterior poliomyelitis. The histories are given briefly, only the facts, so far as they could be gotten, relating to the invasion, the early treatment, if there had been any, the list of the muscles, or groups of muscles, left paralyzed, and a memorandum of the orthopedic treatment being recorded.

Case I.—Girl, age 9; first seen June 29th, 1896. The parents gave a history of an attack of vomiting which came on during a trip to the Cliff House two or three weeks previously. The trip to the beach had been an ordinary one, neither an unusual amount of exercise was taken, nor was an unusual quantity of peanuts and candies consumed. The heat of the day was not excessive, and at starting the child seemed in good health. The emesis was the beginning of what seemed an acute indigestion. There was said to have been fever and the child was confined to bed for a few days. On recovering from the acute symptoms she was found to be paralyzed to an extent which I could not learn from the parents, but they told me that a course of treatment by electricity had been begun. When I saw her she walked feebly and with a limp. Detailed examination showed that all the motions of the left hip, knee, ankle, and in the foot could be made, but all very feebly. The toes of the right foot could be flexed and extended a little, and by them the foot could be moved somewhat on the leg, but she could make no motion at the knee, and could but very feebly adduct, abduct and extend the hip. The whole leg was atrophied, the differences being all the way from 2.2 cm. to 5 cm. The arms were not affected. Two months later she was walking very much better; the improvement, however, was almost all in the left leg. The extensors of the right hip were stronger, and the right perineals had partially resumed function. The group of muscles comprising the quadriceps femoris and the tibialis anticus did not react to the faradic current. Another month later the condition was practically the same and has remained stationary. At the first examination the parents were told that the condition might improve somewhat, that electricity could in no way affect the result; but that as soon as the paralysis became definite an apparatus would be applied to prevent deformity and to replace, in part, the paralyzed extensor of the leg. This was done in November, 1896, the action of the extensor being imitated by a heavy elastic band, and the tendency of the foot to become valgoid being counteracted by a steel sole plate, which was an integral part of the apparatus. With this she walks well, and the likelihood of falling by sudden flexion of the knee, deprived of extensors—an accident that was becoming rather common—is practically abated.

Postscript.—Within the past month I have learned that, in direct opposition to my advice and quite without my knowledge, the use of the battery has been kept up daily by a so-called "homeopath." So that for ten months the faradism has been used, without in any way changing the condition that existed eight months ago. I objected to having my opinions and advice so lightly taken, and the child's father explained that it was done for the sake of peace in the household, and that it should go on as long as it subserved that purpose.

CASE II.—Boy, age 20 months. First seen July 25th, 1896. He had been ill for some time, but the details, both as to time and events, were vague. At the time I saw him he had, plainly, some paralysis of the left leg; however, because of the age of the child and his peevishness it was not possible to make him attempt a series of definite movements to map out the exact disability. Three weeks later there was seen to be marked improvement. He was good-natured and playful and kicked his legs about equally well. In walking the left leg was less firm, there was some rotation outwards of the limb and a valgoid position of the foot. His general condition was not particularly good. His weight, in street dress, was 29½ pounds. It was advised that the child be kept quiet, be well fed, and be given cod-liver oil. A month and a half later he was found to be in much the same condition and valgus shoes were put on. Four months later he is recorded as walking better, but there was still some rotation outwards of the leg and he had to be credited with having a definite paralysis of some of the internal rotators of the thigh. His general condition was improved and he weighed, nude, 29½ pounds. No special treatment apart from the valgus shoes had been used.

CASE III.—Boy, age 22 months. First seen August 6, 1896. The child had been in every way a satisfactory baby, but on the 20th of June, 1896, had fallen while playing about on the floor and could not rise and walk, and when assisted to stand he did not at all use the right leg. The child had first walked at 13 months of age and had always walked well. At the time of the attack he was having a little trouble with dentition. On the 17th of July he began to try and creep a little, and a few days later to try and stand by a chair, but at the time I saw him, the 6th of August, he could not walk alone. Examination showed the right buttock small and flat, the thigh abductors seemed small, the measurements around them and around the upper part of the thigh being 5 mm. to 1 cm. smaller on the left side. The walk, holding the mother's hand, showed a weak and vague use of the right limb, and there seemed to be a slipping up and down of the trochanter. The absolute intolerance on the part of the child of any handling prevented careful estimate of the extent of the paralysis. Apart from the evidences of a slight rachitis the child seemed healthy. His weight, in street dress, was 28 pounds. The mother was told to keep him quiet, the diet was arranged, and cod-liver oil prescribed. Three weeks later he walked much better, all the muscles around the hip functionated, the thigh abductors but feebly, but all the muscles below the knee were, so far as I could tell, paralyzed, except, perhaps, some of the intrinsic muscles of the foot. Weight, nude, 26 pounds, in street dress, 29½ pounds. Same treatment. Two months later the thigh abductors, as shown by a little lateral sway in his walk, were still weak, the calf muscles were paralyzed, but the extensor proprius pollicis and the extensor communis digitorum had resumed function. Weight, nude, 27½ pounds. Valgus shoes were put on at this time.

Two months after this, in December, 1896, all the muscles had resumed function except the calf muscles. The valgus shoe upset the foot, so it was replaced by an ordinary shoe, and three months later, in March, 1897, a brace was put on to hold the ankle firm, and keep the tarsus and metatarsus in a position at right angles to the leg, and prevent the development of a talipes calcaneus. The general health is excellent.

Case IV.—Boy, age 6 years. First seen November 7, 1896. He had an attack of pain in his arms and legs which was thought to be rheumatism. The attack lasted three weeks, and it is said that from near the beginning of it the arms and legs were drawn up and could only be straightened by the use of some force. These contractions subsided in August, and the arms were then found to be partly paralyzed. At the same time he began to try to walk, but because of some paralysis in the legs he had to learn the process anew, as if he had been an infant. After about three weeks of assistance he walked alone, but improvement stopped there. Examination showed a lean child; weight, nude, 39 pounds; height, barefoot, 3 ft. 9¾ in. The extent of the paralysis, as shown by the atrophy and the suspension of function, was very extensive. On the right arm, the rotators of the scapula, the triceps extensor of the arm, the muscles of the thenar eminence and the flexor of the first phalanx of the first finger were paralyzed. Of the left arm all the muscles above the elbow, except the biceps, were paralyzed; the muscles of the forearm were very weak, and those of the thenar eminence were paralyzed. The greater pectorals of both sides were paralyzed. Of the right leg the quadriceps extensor and the thigh abductors were weak, and the muscles of the calf were paralyzed. The left leg was all right. I have no record of any paralysis of trunk muscles. The child was in all ways below par, but there was nothing particularly definite except the paralysis. A supportive treatment was directed, and expectancy advised as regards the paralysis. I have not seen the child since.

CASE V.—Male, age 3 years. Seen September 25, 1896. Two months before, that is, in July, 1896, the child was ill and complained of pain in the left foot. He was kept in bed, and it was said that he did not walk for a month. When he did walk he had a limp which persisted. His general health has always been good. There was no special treatment of the paralyzed muscles. Examination showed that the internal rotators of the left hip were paralyzed. The other muscles seemed all to act, though very feebly. Three months later (December 4, 1896), the internal rotators of the hip remained paralyzed; the other muscles of the limb had increased in strength, except the tibialis anticus and the extensor communis digitorum, and these two were paralyzed. The child had nocturnal and diurnal enuresis, but not incontinence. No orthopedic treatment has as yet been instituted, but it is inevitable that the ankle-joint will need the assistance of a brace before long.

CASE VI.—Male, age 18 months. Seen November 2, 1896. Two months before, the child, who had been healthy up to that time, became ill with some nervous symptoms; the abdomen was distended, the cervical glands enlarged, the child became wasted and was unable to walk, and was confined to bed for two weeks. For the condition thus described it was said that a diagnosis of inflammation of the membranes of the cord had been made. Examination showed paralysis of all the leg muscles, apparently of both quadriceps extensors and of the extensors of the thighs. Because of the position the child usually assumed, it is probable that the thigh abductors were also involved. The child was weak and puny, but apart from the paralysis there was nothing definite. It is particularly to be noted that there were no contractions or contractures; the paralysis was plainly that of poliomyelitis. A supportive and expectant treatment was advised. The child has not been seen since.

CASE VII.—Girl, age 4 years. Seen February 27, 1897. Ten months before, that is, in April, 1896, the child was ill of an eruptive fever, which was thought to be measles. She was at that time in Napa City. There is a report that the child's arm had been violently pulled by some one; but that has no place in the special history of the latter lesion. One morning, when convalescent from her illness, it was found that she could not move her right arm nor her left leg. The leg, however, began to recover very soon; she could get up and about a little, and by the end of two months the leg was considered well. Soon after the invasion massage was begun, and had been kept up until shortly before I saw her. At this time the leg had recovered, except the calf muscles, which were definitely paralyzed. In the arms, the pectorals, the scapular muscles, the deltoid, and the muscles on the upper arm (flexors and extensors of the forearm) were definitely paralyzed. The child's general condition was fair, though she was a little below the average height and weight for her age. No orthopedic treatment was instituted, though some is indicated to prevent a talipes calcaneus.

CASE VIII.—Boy, age 2 years. First seen February 3, 1897. The child is a fairly healthy baby; has had occasional attacks of fever, with vomiting and diarrhea. When he first walked, at the age of 11 or 12 months, the mother noticed that he was lame, and that the trouble was in the left leg, where some of the muscles apparently did not operate. At the age of 18 months the child had a single slight convulsion. Examination showed that all the muscles of the left leg, except the tibialis anticus and flexor proprius pollicis were atrophied and paralyzed, and that there was a dislocation, very easily reduced, of the foot from the fibula, the foot going into a complete varus position when he walked, the toes pointing in and the sole looking directly backwards. The rest of the muscles of the limb were weak, the knee was slightly over-extended at each step; and the knee-jerk could not be elicited. There has been no special treatment for the condition, and the orthopedic treatment was limited to a rigid ankle-brace to hold the foot permanently at right angles to the leg, and to prevent the dislocation.

This little group of cases illustrates in its different members almost all the various causes to which etiological influence is attributed and all the different methods of onset. Moreover, all these children were, up to the time of the attack, fairly healthy; and that is within the rule, for usually healthy children are the ones attacked.

It is the rule, too, for the attacks to come in the hotter months. Of those 8 cases, 3 occurred in June, 1896, 1 in June or July, and 1 in July, while of the other 3, 1 came in April and 1 in September, 1896, and the date of the remaining one cannot be fixed.

As regards the mode of invasion, 1 came from an eruptive fever; 1 came when the child was running about much, and eating some indigestible food; 1 came suddenly, like an attack of apoplexy; 1 came as a serious illness, probably affecting the meninges of the cord as well as the cord itself; 3 were ushered in by vague, not serious illness, and of 1 no knowledge can be had beyond the fact that the child frequently had fever and vomiting and diarrhea.

It is to call attention to this, more than anything else, that this paper is written. As you know, the true diagnosis of these cases is rarely made until the acute symptoms are over and the child is pronounced convalescent of its illness, whatever that may have been thought to be, and an attempt is made to get up and walk, when the paralysis is discovered. Now, by this time the golden opportunity for therapeutics has passed. The cord lesion—the inflammation in the anterior horns of the gray matter—has run its course and is recovering, and the paralysis found represents the extent of the unrecovered portion which will recover, and the portion which will not recover. It is very probable that, even in the cases where the diagnosis has been made during the febrile stage, therapeutics has but little to offer. This must be the case in a disease, the essential character of which is still not definitely known; but that the process is inflammatory seems evident, and the symptom inflammation might be attacked and perhaps held somewhat in check. But this must be done in the first 24 or 48 hours. for by the end of that time the damage which is to be lasting has probably been done.

As the disease attacks most frequently children under four years of age, and as it is rare that there is any pain in the spine which the child can locate and indicate, the chance of an early diagnosis being made depends on the physician keeping always in his mind the possibility of an acute anterior poliomyelitis being the cause of some of the many vague and apparently insignificant illnesses of childhood and being always on the lookout for it. It is now over twelve years since I treated a child for indigestion who had a poliomyelitis, and since that time I have never seen a child in whose case the diagnosis was obscure without examining to see if the child could move all its extremities. I have not yet found my second case, but last summer I got to within two weeks of the invasion, and some time, if I live long enough, I will make the diagnosis.

In cases seen during the stage of recession it is the custom, sanctioned by advice and precedent, to treat the paralyzed muscles with faradism and the cord with galvanism. I fail to see any benefit that can be expected to follow from this practice. That galvanism can stimulate the absorption of an inflammatory exudate, or determine the regeneration of destroyed nerve cells, I do not believe. Nor do I believe that there is any sound scientific reason for passing a faradic current through a muscle that will not respond to it. It would be quite as reasonable to faradize cellular tissue, for that is what the permanently paralyzed muscle is, or is to be.

The proposition seems to me to be a very simple one. There is an acute inflammation of the substance of the spinal cord. By this some of the nerve cells have their function suspended; other nerve cells are destroyed. As the inflammation subsides the nerve cells, the function of which has suspended, gradually resume that function. The function of the nerve cells that have been destroyed is never resumed.

The *early* diagnosis may hold out some hope of lessening, in some degree, the extent and intensity of the inflammatory process and the amount of its damage. The later, and usual, diagnosis should look to assist normal reparative processes. This is done by such means as proper regulation of diet, perhaps tonic drugs, and such ordering of the life that *all* fatigue is avoided and *no* excitement is permitted; in short, means exactly similar to those one would use during convalescence from an acute inflammation of any tissue, not nervous.

That electricity in the case of little children conduces to the avoidance of either fatigue or excitement I cannot believe. I have been the victor of many a pitched battle when I was determined that the things the books said ought to be done, should be done. That I did no harm, I am not sure; that I did no good, I am positive. That electricity in any form has proved to be a dismal failure in hundreds of these cases, every orthopedic clinic can bear testimony. In children who are old enough and sensible enough to be controlled, electricity has a use for the making of a prognosis. The muscles that show the reaction of degeneration at the sixth week of the paralysis will quite certainly remain permanently paralyzed, and the disability due to its failure may, perhaps, be avoided by some form of apparatus.

There have been, in recent years, two plans suggested, both operative, to relieve these unfortunate cases. One is the transposition of the tendons of paralyzed muscles to neighboring live muscles of similar function, and this has been advocated and practised more especially by Goldthwaite, of Boston. To illustrate: the tibialis anticus is one of the muscles that, most frequently, remains paralyzed, while the extensor proprius pollicis very frequently escapes. The loss of the tibialis anticus usually results in the breaking down of the arch of the foot, the falling over of its inner border and the development of a paralytic valgus. Now, as we stand, the extensor proprius pollicis, in common with the other muscles of the leg, steadies the leg over the foot; therefore, if the two muscles be exposed above the ankle, the tendon of the tibialis anticus be cut off close to the muscle and then quilted into and stitched to the extensor proprius pollicis, the latter muscle may be made to assume part of the function of the former. Other similar transpositions may suggest themselves in individual cases. It is curious to note, in operating on these cases, the color of the paralyzed muscles, which is a pale pink, like that of raw veal, strongly contrasting with the deep red of the living muscular tissue. In a case on which I did the operation of transposition, and in which the paralysis had been of 16 years' standing, all muscular tissue had disappeared from the affected muscle, and its place had been taken by some loose, delicate, areolar tissue.

The other operation, that of arthrodesis, first done by Albert, of Vienna, in 1878, secures anchylosis between the two bones entering into the formation of a joint, the muscles of which are paralyzed. The operation is done most frequently at the ankle when all the leg muscles are paralyzed, but is sometimes to be done at the knee when all the muscles of the thigh are implicated. The operation consists in opening the joint by a convenient incision, and removing the articular cartilage of both bones. The wound may be closed, or packed and made to granulate to favor synostosis. The operation should never be done until the paralysis is definitely permanent.

In cases where the paralysis has affected all the muscles that control the hip-joint, usually most of the other muscles in the thigh and leg are involved, sometimes the flexors or extensors of the toes only escaping, and in this instance the limb is useless and an incumbrance. Under these circumstances I have advised amputation through the hip-joint to get rid of the member. The removal of a shriveled and powerless limb is more like detaching a portion of the skeleton than an amputation, and I believe is a proper surgical procedure, but the advice has usually been treated with scorn. However, some day I shall find a sensible person who will have it done, and then I will report the case.

1303 Van Ness avenue.

AFFECTIVE INSANITY.

By F. R. Waggoner, M. D., Sacramento, Cal.

Read before the Sacramento Society for Medical Improvement.

Insanity being a generic term, we have two classes and many species and forms. I propose this evening to discuss one grand division or class—affective or pathetic insanity. An insanity of the emotional side of life, as against ideational alienation.

This is a classical division, emanating from no less authority than Dr. Maudsley, and perhaps the nearest a rational primary division that can be made of the functions of the cerebral centers. On the side of our affective life, lies all our emotions, good or bad; our moral faculties as well, perhaps, as our shortcomings—if not depravity.

On that of ideation—our intellectual faculties, our perception of ideas and coördination of thought and the language to express it. Under this head it does not take an expert to detect or diagnose insanity. The laity recognize a maniac, a dement or idiot, as well as the poor driveling, weeping melancholic with delusions of unpardonable sins or some other equally grave, threatening calamity. On this side the courts and physicians never have contests; it is a matter of common observation and the findings of the courts are in accordance with the observed facts.

The affective side of human life is the debatable ground on which experts disagree, courts err, lawyers wrangle, the insane are punished even to death, and the sane—the responsible criminal—is given his liberty thus cheating the gallows out of its own. Let the verdict go as it may, the profession suffers just the same. The plea of insanity becomes a word of reproach, synonymous with subterfuge, if nothing worse. The disagreement with the experts results from a want of proper study of the case, especially of its history. The courts err from misstated facts, and the lawyers for valuable consideration.

I assume that in all cases of affective insanity a diagnosis can as certainly be made out by the painstaking physician, if he be sufficiently informed on the doctrines of psychological and neurological science to make him eligible to give testimony in a court of justice—to say nothing of the professional alienist—as can a case of ideational insanity, or one of manifest insane delusions.

I have used the word psychological science, and lest you have a misapprehension of my idea of the pathology of insanity, I will here state, it is solely a disease of the supreme nerve centers. Conforming to a definition of insanity that I gave in a former paper before this society, psychology might be applied to mind divine. If the soul be immortal it cannot be diseased, it, therefore, has no place in insanity and cannot be considered in connection with the pathology of our subject. The mind is not tangible, it cannot be diseased.

In further elucidating the subject for purposes of diagnosis I would emphasize the point, that there are no hard and fast rules of diagnosis in the affective groups of insanity; the groups consisting of all types in which there is a change of action and personal character, as emotional, moral, and so-called implusive. Perhaps all have a common etiology.

There is one distinctive diagnostic point in the incipiency of all cases that I further wish to emphasize—that is, change of action. It is the alienist's golden rule to measure his cases. Affective insanity is a progressive disease. It is not the clap of thunder from a physiological clear sky. All forms of insanity are of gradual invasion as much so as tuberculosis or cancer, with the exception, perhaps, of epilepsy in its protean manifestations.

In epilepsy there may be sensor explosions as deep, and profound, and more dangerous to those around than a motor attack, or motor explosions of the same disease. But in all cases of epileptic sensor outbursts careful study of the history of the case will make diagnosis easy when coupled with the stupor that follows, usually as marked as in the motor variety.

The doctrine—and it is one that has been urged in the courts by attorneys and sustained by so-called experts—that persons could be sane one minute, insane the next, commit murder, and perfectly return to sanity the next, is dangerous to a community, fraught with mischief, unscientific, not founded on fact, and urged and defended in ignorance.

In all cases of pathetic disturbance so deep as to produce a change of action, the pivotal point on which diagnosis depends, it may be truly said that the subjects are near the line of mental alienation. Unfortunately there are no hard and fast lines in the border lands between affective and ideational insanity; no exact line of demarcation as in some other form of physical disease. Incursions may be made to and from the ideational side and it may become a question which side of the line the cases properly belong. They may lie for an indefinite length of time with no further disturbance than moral decrepitude, change of action and irascible disposition, with explosions of uncontrollable temper. Sooner or later they pass to the ideational side to become inmates of an asylum (if not cured) and to wind up in chronic dementia—that tomb of the intellectual faculties. The invasion proceeds from the emotional centers to the higher brain tissues, and sweeps away the cortical cells of ideation. That which was but a shadow at first ends in a dismal cloud of destruction, or in other words a passive hyperemia in an active and destructive phlogosis.

It is this change of character the immediate friends are, perhaps, the first to apprehend. It is always an evil omen, and it is the first symptom to appear and the last to disappear in all cases of affective insanity. How many times have you seen patients returned to their homes from asylums cured. To the casual observer they are well Friends may be congratulated on the restoration of a dutiful son, perhaps, but the family know better. A loving mother, perhaps, will say, "yes, he is well; but he acts strangely, just as he did when he was first taken." Father and sisters will confirm the observation. He may progress to perfect recovery, and by some exciting cause there is a relapse and to the asylum he returns. Such is the clinical history of nine cases out of ten. If such a one has an explosion, is seized with homicidal mania and kills some dear one of the household, he should be held guiltless.

This phase of insanity has been well illustrated in the celebrated case of Destrom, in St. Louis, that was terminated by the extreme penalty of the law a few weeks ago. This man's whole moral character shows the affective alienation. The forsaking of a happy home, a loving wife and an only child for lewd associations, the returning and killing without provocation or motive. Satyriasis is very often one of the first evidences of this form of insanity. How many patients in our asylums, with no trace of delusions, have asked and sought restraint to prevent their doing violence to inmates or attendants.

The late and lamentable Cooper case in San Francisco is another illustration of the tragedies that may follow in the wake of this class of insanity. Here a young lady, cultured, educated and refined, with no evidences of mental alienation, was seized with homicidal mania. She not only commits suicide but matricide, because she loved her mother so well. For years her strange actions had been remarked by her friends and medical adviser. Yet she read, taught and talked in public places without delusions or other evidence of mental deviation.

Such cases are more dangerous to a community than any other form of insanity, because they are least suspected and seldom avoided. Like sensor epilepsy, they are liable to explosions, but generally they are stealthy and their plans are deeply and well laid and executed. Woe to the medical man, alienist or expert, that dares to go into court and defend them with his oath. The "insanity dodge" is portrayed in the papers, and the physician is alleged to have perjured himself for a fee. If acquitted the court is corrupt and the jury the embodiment of wooden-headed stupidity. If the culprit be rich it is charged his money saved him, and not the science of neurology.

I will now recite a case of personal observation that occurred in Nevada county some years ago. In one of the mining districts of the upper part of the county two friends of Irish birth were housed in a cabin. They had plenty of spirits and had become, no doubt, convivial. They were absolute friends—one was furnishing the other with means to carry on prospecting, and that day ordered him a full supply of provisions, but in the evening was no doubt seized with a homicidal impulse, with doubtless a delusion of his personally wronging him. He seized his dependent friend and with a club killed him, and, like a wild beast, tried to tear him open ; failing in that attempt, he dragged him some distance to the house of a justice of the peace, and demanded that he should take from his victim's pocket money he had stolen. He left the body and went to his cabin, and when arrested was sitting in a chair in a stupor. When aroused he had no knowledge of the killing of his friend or the dragging of the body to his neighbor, and wept bitterly over the act when assured of his deed.

He was indicted for murder, and I was called upon to defend him from the witness stand. My defense was sensor epileptic explosion, superinduced by the imbibing of spirits. History, traumatic lesion, fracture and depression of cranial bone near the occipito-parietal suture of some years' standing. Delusions of grandeur as well as of persecution for some years after, but of transient character. Leaving home frequently afterwards, traveling aimlessly through the mountains, having been returned to his home by friends and not afterward having recollection of his meanderings, yet all the time performing labor intelligently. Physical condition, pronouned anesthesia of the whole body, and many of the symptoms of paresis of the insane, recent delusions. First trial convicted of murder, sentenced to life imprisonment. New trial procured; verdict manslaughter. Sentenced to four years' imprisonment. He died, I believe, from general paralysis before the expiration of his term of sentence. I received the compliments of the season for my defense of the insanity dodge.

I shall now introduce some hypothetical cases, perhaps some of them founded more or less on fact or observation. What may be insanity in one might be the normal condition of another. Our acts conform largely to our education, calling and position. Each case must be studied as a unit, and the personal character, past history, heredity and environment of each case should be well known and in evidence, before an expert can give a correct diagnosis. Depravity in one might be insanity in another.

If we take a staid gentleman, correct in deportment, suave in manners, dignified in actions, moral in character, and this is and has been his history through life—if we find him the reverse of his past life, degraded in character, lax in morals, frivolous, profane, filthy in person, indifferent to those about him, grotesque in dress, though he talks intelligently—that man is insane. A father has been kind and attentive to his family, loving and caressing to his children, cherishing his wife, doing all for their comfort, attentive to business and keeping regular hours at home and fireside—by degrees he becomes negligent in business, irregular at his meals, irascible when he does return. He repulses his wife, develops cruelty to his children, is negligent as to their wants, seeks lewd associates—with all these marked changes in character he is not in harmony with self or past life, nor is he in harmony with his surroundings; he has balanced on the pivot to the insane side—he is mad.

Another who has lead a frugal life, saved all his earnings and really been miserly in expenditures, but who afterward becomes lavish in expenditure, especially upon unworthy women, perhaps, destructive in nature, cares nothing for personal appearance, puts on unseemly ornaments, abandons business, though rational in conversation—he is insane.

The following case is, I believe, reported by Hammond from the city of New York. A brother, a leading merchant, has an only sister, she his housekeeper and only companion. For years their relations were all that brother and sister could be; their happiness was perfect in each other's society; he attentive and devoted to business—she presiding over his house as a reigning queen. But as time passed discord sprang up, his pleasant words were exchanged for oaths of abuse without any adequate cause. One day he leaves home for the counting-room in a passion, which culminates in destruction of furniture. He orders his sister from his house and establishes in her place a prostitute of the lowest type. In a few weeks he was taken to the asylum a raving maniac.

At first we have a case of affective insanity. It passed to the other side and became ideational with mania. In the incipiency or prodromic stage we only find the affective, pathetic, emotional and moral centers invaded. This may last for days, months or years before the involvement of ideation with hallucination, delusion and mania. The moral becomes immoral, the chaste vulgar and lewd, the modest brazen with effrontery, the religionist profane, the neat and well-groomed careless and grotesque, the charitable sordid and selfish—a reversal of their past lives, out of harmony with themselves and their surroundings, all because their brains are clouded.

The guilt or innocence of these cases when explosions lead them, like the force of a tornado into crime, murder, arson or what not, is with the courts. They will never discriminate between a bad man and a mad man. They know nothing of pathology, and too often refuse to be taught. Crime should be punished and the sick sent to the asylum.

1712 J Street.

THE SERUM DIAGNOSIS OF TYPHOID FEVER.

By GUIDO E. CAGLIERI, M.D., San Francisco, Cal.

Read before the Alumni Association Medical Department University of California.

It frequently happens that we find ourselves dealing with a case of intestinal trouble, without being able to absolutely decide whether it is a case of infection due to Eberth's bacillus or not.

To those who have seen but few cases of typical typhoid fever, this seems an easy matter, their opinion having been formed from reading a description of typhoid fever in some text-books on medicine, or from listening to lectures on the subject at the bedside. There is, moreover, an impression among practitioners that they can invariably diagnose at the bedside a case of this disease after one or two visits.

The explanation of this impression is very easy. If the case be one of gastro-enteritis or simple enteritis of an acute nature, getting well in a few days, they congratulate themselves with having had a case of aborted typhoid, and supposing that they began treatment with a large dose of calomel, they praise the powers of this drug in aborting the disease.

If the case last a longer period without signs of severe constitutional infection, they refer to it as one of light or erratic typhoid, and nothing more is thought of it after recovery; or if, perchance, death were to occur a *post-mortem* examination is not made, and the case is forgotten as one of the many cases of typhoid ending fatally.

I have simply mentioned here the confusing of typhoid with other gastro-intestinal lesions, but such diseases as typhus fever, malarial fever, acute miliary tuberculosis, meningitis, cerebral abscesses, septicemia and pyemic ulcerative endocarditis and trichinosis have more than once been diagnosed as cases of typhoid fever.

There are unfortunately no signs present in this disease which are absolutely pathonomonic. The coated tongue with red borders is common to all gastro-enteric disturbances, accompanied with fever; the loss of appetite is present in all acute infections of whatever nature; the gurgling sound in the iliac region, which but a few years ago was given so much importance, can be found in individuals who are absolutely healthy, the only conditions necessary to produce this phenomenon are the presence of gas and liquid in the intestine at the same time. The diarrhea is only caused by a catarrhal conditon of the bowel or an increased peristaltic action, either of which may be produced by anything in the intestinal tract that causes irritation, whether this be Eberth's bacillus or a swallowed coin or button.

The enlargement of the spleen has only a general significance, it being present in all infectious conditions, more especially in those involving the intestinal tract. The catarrhal phenomena of the respiratory tract are likewise common to many of the infectious fevers. The marked nervous phenomena are only the result of the high fever and the poisoning by the ptomaines. For years the text-books have given an illustration of a temperature chart as typical of typhoid which is really seldom seen in the cases we meet in practice.

I admit that when we have a collection of symptoms, such as the above, in the same individual, and the disease is progressing slowly, one is fairly safe in diagnosing typhoid fever. It is in the initial stage, however, that one must try and diagnose this condition, so as to protect all those around the patient from infection by instituting proper hygienic measures.

From these general considerations the absolute importance of having some direct means of diagnosing typhoid fever must be plain. This may be effected in two ways, either by demonstrating the presence of the bacillus in the organism or by proving the presence in the blood of some substance having a special reaction, the elaboration of which is due to the presence of the typhoid bacillus.

The bacillus itself can be demonstrated in the feces and in the blood, more especially the blood removed from the spleen by an exploring needle, and that from the roseolæ. It is not sufficient to prepare the bacilli for microscopical examination owing to the uncertain morphological characters that distinguish it from the bacterium coli communis, but it is indispensable to make cultures and to examine their character very carefully. These researches require careful *technique*, and are complicated; and, moreover, in the case of the cultures a certain time is necessary in order to be able to study the peculiarities of development of the organism. For this reason these methods of diagnosis have never met with favor among medical practitioners, and one of the greatest desiderata has been a quick, easy and safe means of diagnosis that is absolutely practical.

This, I think, is furnished by the recent publication of Widal on the serum diagnosis of typhoid fever. The reaction described by this able French pathologist and clinician is as follows: A few drops of the serum of a patient infected with typhoid fever dropped into a test tube containing a bouillon culture of Eberth's bacilli causes agglutination of the bacilli and the precipitation to the bottom of the test tube in flocculi, rendering the culture fluid above clear.

The first researches in this subject were instituted by Hebert and

Durham, and later by Pfeiffer, Köll and Max Gruber, all of whom demonstrated that the serum of a convalescent typhoid patient, or of an immunized animal, gave a special reaction with cultures of Eberth's bacillus, which was valuable in differentiating this organism from the bacterium coli communis.

The difference in the reaction is as follows: If we add to a bouillon culture of the bacterium coli some serum of a typhoid patient, in four or five hours we see the culture medium become quiet, turbid, whereas the typhoid cultures become clear. After 24 hours the turbidity of the former increases, whereas in the latter the clearness remains unchanged, but at the bottom of the tube we see a white flocculent deposit. Moreover, on examination with the microscope we see the bacterium coli scattered and isolated, but the typhoid germs are gathered into small heaps and are much deformed.

The study of the application of this laboratory experiment to clinical diagnosis was begun in 1892, by Widal and Chantemesse, and last summer an extensive report was made by Widal in a paper read before the Paris Academy of Medicine. Widal, in conjunction with Sicard, continued these researches, and found that the period of greatest activity of the serum corresponded with the acme of infection, and although present in convalescence it diminished in activity as the convalescence progressed. From these facts he deduced that this reaction was not one of immunity but of infection. This idea is being contested by Maragliano, who, in my opinion, justly claims that it is a reaction of immunization, and not of infection. Widal himself, in one of his publications, says that he obtained this sign from the blood of a young man who had had typhoid fever previously, and since this report other investigators have found, even after longer periods, that they were still able to obtain this reaction.

It is to be expected that at the moment of most intense infection our organisms will react most strongly to it, and will, therefore, at that time, bear the greatest quantity of immunizing material in the circulation. Admitting, for the sake of argument, that this reaction is due to immunizing substances in the circulation, it would be exactly at the moment of most marked constitutional intoxication that the reaction would be best shown.

Achard, in a paper read before the Biological Society of Paris, has shown that the fetuses of many animals were immune to the infections that the mothers were subjected to when they were exposed to these same infections, and Mossé has recently stated that the serum of fetuses, whose mothers were suffering from typhoid, had this agglutinating power without the fetuses showing any signs of typhoid. The *technique* of Widal's test is quite simple. To a bouillon culture of Eberth's bacillus, prepared in the ordinary way, is added a few drops of serum from a patient in the proportion of one part of serum to 10–15 of the culture bouillon. After about 24 hours the bouillon is quite clear, and at the bottom of the test tube are seen a number of flocculi. This reaction begins to show itself after about twenty minutes, but 20 or 24 hours is necessary for the reaction to be quite complete. Many observers claim that the macroscopical examination is sufficient, but it is best to supplement this with the microscopical examination, which shows the individual bacilli grouped into small colonies throughout the field. In many cases as early as the fourth day of infection the reaction is already present. The serum for the test may be derived directly from the blood, but a preferable method is to apply a small blister and gather the exuded blood serum.

This power of agglutination seems also to be possessed by the blood serum in other diseases. Nicholas, at the Sociétie de Biologie, has recently reported that in many cases of diphtheria he was able to obtain a similar reaction with cultures of the Klebs-Loeffler bacillius. Let us hope that this means will soon find as wide and useful application as the method of Widal.

Arlonig, in an article in *The Lyon Medicale*, publishes some experiments with the pneumococcus, which seem to indicate that some such agglutinating action is possible in the serum of those infected with the bacillus of Friedlander. The exact nature of the substance producing this valuable reaction in the diagnosis of typhoid we do not know. It is more than likely that it is some product of the tissues themselves elaborated in the presence of the typhoid bacillus. It would seem to be a test-tube proof of the manufacture by the tissues of some product for the defense of our organisms which, in the case of all infectious diseases, tends to be victorious, and upon which fact the principle of serotherapy is based.

Up to the present, from all sources, I have been able to gather 51 cases of undoubted typhoid, in which the reaction was unquestionably present. In 4 other cases there was some doubt with regard to the diagnosis, which was cleared up by the positive reaction of the test, these cases being afterwards proved to be typhoid by bacteriological examination.

With regard to the tests in non-typhoid cases, I have been able to collect 56 cases of such varied diseases as pneumonia, tuburculosis, pyemia, meningitis, erysipelas, diphtheria and intermittent fever, and with one exception the test was negative. This exception was a case of infective adenitis of the axilla following a cut on the index finger, reported by Ferrand; but in this case Widal himself showed the fallacy by proving that the *technique* of the test was faulty and the cultures not absolutely pure. I think, by such conclusive evidence,, you must agree with me in regarding this method as a valuable one in the early diagnosis of this dread disease.

Comparing this means of diagnosis to the method of Elsner and to that of Ehrlich, or the diazo reaction, I unhesitatingly affirm that it has many advantages. In Elsner's method it is necessary to prepare the culture medium in a special manner, and then 24 hours at least must elapse before the cultures are sufficiently developed to examine. Even then it is not always easy to distingush the cultures due to Ehrlich's bacillus from those due to the bacterium coli commum. Comparing Widal's method with that of Ehrlich, we know that the former is certain and special for typhoid, whereas the latter is present in many diseases marked by wasting of the tissues, the reaction depending only on the presence in the urine of some product of retrograde metamorphosis.

It behooves every one of us, therefore, as hygienists and practitioners, when any doubt exists in a case, at our very first visit, to apply this test so that we can by proper dietetic and hygienic precautions save our patient's life and preserve others from infection. Many of you may say that medical men cannot keep inoculated tubes on hand, and you are right. I hope, therefore, that the San Francisco Board of Health's bacteriologist will kindly attend to this, and that when physicians send him a vial of suspected serum he will apply the test and hand the report to the doctor at his earliest convenience.

520 Montgomery street.

A STUDY OF THE BLOOD IN 73 CASES OF BONE TUBERCULOSIS IN CHILDREN, WITH REFERENCE TO PROGNOSIS AND TREATMENT.

By PHILIP KING BROWN, M.D., San Francisco, Cal.

Read before the Medical Society of the State of California.

Why mesoblastic tissue of children is peculiarly susceptible to tuberculosis, and the epithelial structures are correspondingly free, I do not know, but the fact remains that glands and large bones are the usual seat of the tuberculous processes in children in contradistinction to the commoner location in the lungs of adults. It is quite the rule to find enlarged cervical glands as the sole tubercular lesion in a child, pointing to a direct passage of the bacillus tuberculosis from the mucous surface to the gland. This is more clearly shown in the cases of tuberculosis of the mesenteric glands, without primary tubercular ulceration of the intestines. This is rather the rule in children, while the condition occurs rarely, if ever, in adults. Attention has been called, also, to the infection of the bronchial and tracheal glands without a sign of pulmonary tuberculosis.

The location of tubercular processes in children points, therefore, to infection through the blood and lymphatic circulation by the organisms taken up from the gastro intestinal and respiratory tracts. It is not unreasonable to consider that there exists in the blood of children a condition which renders it less destructive to organisms than is the blood of adults, and to infer that the element of the blood, destructive to organisms, does not have its origin directly through the lymphatic system. What the different condition in children's blood is and how it may account for the greater susceptibility of children to contagious diseases in general, I shall point out in a later paper, confining myself now to the changes in the blood caused by tubercular processes in bone, and their chief complication, septicemia.

Secondary infection of the wound is almost unavoidable where a case comes to operation, so that it is necessary to consider that we have the changes of a mild septicemia to deal with in considering the cases examined in the period following an operation.

I have separated the 73 cases into groups according to the location of the process, the presence or not of a clinically demonstrable abscess, and the treatment. Two cases, where a large primary abscess was involved, were studied carefully before and after operation, and are, therefore, counted twice, making a total of 75, of which 42 came to operation. The cases are divided as follows:

Hip-joint tuberculosis with abscess (*a*) operative interference	26
Hip-joint tuberculosis with abscess (*b*) no operative interference	6
Hip-joint tuberculosis without abscess, no operative interference	9
Vertebral tuberculosis with abscess (*a*) operative interference	4
Vertebral tuberculosis with abscess (*b*) no operative interference	5
Vertebral tuberculosis without abscess, no interference	9
Vertebral and hip tuberculosis with abscess and operation	2
Vertebral and hip tuberculosis, no abscess, no operation	1
Ankle joint tuberculosis, abscess and operation	1
Knee-joint tuberculosis, abscess and operation	4
Knee-joint tuberculosis, no abscess and no operation	3
Knee-joint tuberculosis, no abscess, but an operation	5
Total	75

HIP-JOINT TUBERCULOSIS, WITH ABSCESS.

A.—OPERATIVE INTERFERENCE.

Case No.	Sex.	Age.	Duration.	Family History.	Location and Extent.	Treatment.	Date of Count.	Hæmoglobin Per cent.	Erythrocytes.	Leucocytes.
1	F.	13	2¼ yrs.	Negative.	Tub. of R. hip, with large abscess opened several times.	Excision of hip in '96. Presisting sinus, Sept., '96.	Sept. 22, 1896 March 15, 1897	68 87	4,750,000 4,680,000	12,760 9,375
3	F.	9	3 yrs.	Father died phthisis.	Tub. of R. head of ulna with abscess	Excision, etc., '95. Sinus nearly healed April 1, '97.	Sept. 22, 1896 April 1, 1897	55 76	3,960,000 4,760,000	12,500 5,940
4	F.	6⅔	2 yrs.	Negative.	Tub. of L. hip, with abscess.	Excision head of femur 1 yr. ago. Sinus nearly healed.	Sept. 22, 1896 March 26, 1897	50 98	3,720,000 4,400,000	14,150 7,500
6	F.	11	7 yrs.	Twin sister had hip disease.	Tub. of hip, with psoas abscess.	Abscess opened and curetted in '92. Traction, sinus.	Sept. 22, 1896 March 25, 1897	40 47	3,960,000 4,360,000	26,850 14,060
8	F.	12	3½ yrs.	Negative.	Tub. of hip; sinuses lungs involved	Curettings and excisions.	(Died)	15	2,800,000	9,650
9	F.	11½	8½ yrs.	Negative.	Tub. of hip, with abscess.	Excision of head of femur 4 yrs. ago. Curettings. Sinus discharging.	Sept., 1896 March 3, 1897	87 85	5,140,000 5,140,000	13 300 15,625
10	F.	11½	8½ yrs.	Negative.	Tub. abscess outside hip joint in sac iliac syn.	Incision and curetting Oct., '96. Sinus presisting.	Jan., 1897 March 26, 1897	66 95	4,600,000 5,920,000	31,250 14,075
12	F.	11½	4 yrs.	Pat. grandmother, uncles and aunts died of phthisis.	Tub. R. hip & L. wrist; abscess opened 4 yrs. ago; curetted Jan., '96.	Curetting. Traction.	Jan., 1897 March 26, 1897	38 68	4,133,600 5,680,000	6,650 6,595
13	F.	5	3 yrs.	Negative.	Tub. of heads both femurs, with abscesses.	Abscess opened and bone excised 1 yr. ago, before entering Ch. hosp. Sinuses.	Feb., 1897 March 29, 1897	55 55	4,900,000 4,480,000	16,650 15,625
16	F.	7	2 yrs.	Mat. grandmother died of phthisis.	Tub. disease of R. hip, with abscess in R. lumbar region.	Abscess opened 1 yr. ago.	Jan., 1897 March 30, 1897	75 100	4,200,000 5,040,000	6,650 12,500
23	M.	7	1½ yrs.	Aunt had phthisis.	Tub. disease of hip-joint, with abscess above and behind joint.	Traction. Abscess opened Feb. 13, '97.	Feb. 4, 1897 Feb. 13, 1897	68	5,260,000	11,250 12,185

24	M.	8	3 yrs.	Negative.	Tub. of L. hip, with abscesses which opened spont. 1 year ago.	Curetting. Traction. Abscesses now healed.		80	4,800,000	8,780
30	F.	13½	9 yrs.	Negative.	Tub. of L. hip.	Excision Dec.,'89. Curetting Jan., '97. Healed March, '97.	March 3, 1897	68	4,480,000	12,500
33	M.	14	3 yrs.	Negative.	Tub. of L. hip and elbow; multiple abscess.	Amputation at thigh.	Feb. 28, 1897	54	3.435,000	11,850
34	M.	9	6 yrs.	Negative.	Tub of R. hip-joint, with abscess.	Excision and curetting '92. Many curettings since. Wound healed March, '97.	Feb., 1897	78	4,125,000	10,330
36	M.	3¼	2 yrs.	Negative.	Tub. of. L. hip, with abscess in inguinal region.	Traction, etc. Abscess opened Dec., '96.	March 4, 1897 April 6, 1897	57 68	4,132,800 4,500,000	29,564 19,365
37	M.	7¾	2 yrs.	Negative.	Tub. of hip, with abscess in joint.	Excision May, '96. Sinus presists.	March 6, 1897 April 10, 1897	58 68	5,328,000 5.400,000	12,185 13,000
38	M.	8	6 yrs.	Negative.	Tub. of L. hip, with abscess which opened spont. 4 yrs. ago	Discharging from 3 sinuses.	March 6, 1897 April 25, 1897	48 37	5,120,000 4,120,000	25,000 13,800
41	F.	8	1 yr.	Mat. gr. gr. mother died of phthisis.	Tub. disease of joint, with abscess opened 4 mos. before.	Head of bone excised March 14, '77. Sinuses, etc., curetted.	March 10, 1897	54	5,000,000	10,937
42	M.	7	2¼ yrs.	Negative.	Tub. of head of femur and acetab. abscess penetr'ing to pelvic cavity	Excision and curetting in '95. Numerous curettings since; last on March 14, '97.	March 10, 1897	68	4,560,000	9,357
44	F.	7	2½ yrs.	Maternal uncle had phthisis.	Tub. of hip, with abscess.	Exsection in '95, and abscess opened. Discharged in Jan., 97. Sinuses nearly healed.	March 11, 1897 (sinus not quite healed)	85	4,600,000	9,062
45	F.	21	6 yrs.	Negative.	Tub. of L. hip.	Traction 3 mos.; 3 curettings in next 4 yrs. Excision of head of bone Feb., '96.	March 11, 1897 (sinus nearly healed)	92	5.640,000	9,062
46	F.	15	8 yrs.	Negative.	Extensive abscess of hip-joint; lumbar abscess opened Aug., '95.	Excision Feb., '95. Curetting Feb., '96.	March 11, 1897	96	4,440,000	9,680
54	M.	3½	1½ yrs.	Negative.	Tub. of hip, 2nd stage, with abscess	Opened Dec., '96. Wound healed March 31, '97.	March 22, 1897	67	5,840,000	8,595
55	M.	8½	4½ yrs.		Tub. of both hip-joints, with double psoas abscess.	Double exsection. Sinus presisting.	March 24, 1897	76	5,600,000	10,000
57	M.	15	6 yrs.	Negative.	Tub. of head of femur, with abscess which opened spont. 6 yrs. ago.	Excision in Oct., '92. Sinus presisting.	April 1, 1897 (2 hrs. p. c)	81	4,800,000	10,250

HIP-JOINT TUBERCULOSIS, WITH ABSCESS.

B.—No Operative Interference.

Case No.	Sex.	Age.	Duration.	Family History.	Location and Extent.	Treatment.	Date of Count.	Hæmoglobin Per cent.	Erythrocytes.	Leucocytes.
11	F.	6	3 yrs.	Negative.	Tub. head of femur L. abscess all around joint, increasing in size (Feb. 3.) Mar. 16, stationary since.	Traction.	Feb. 1, 1897	72	5,168,000	14,370
							March 29, 1897	85	4,640,000	9,685
21	M.	2¼	4 or 5 mo.	Brother with hip disease. Case 31.	Tub. of head of L. femur, with abscess all around trochanter.	Traction.	Feb. 4, 1897	84	4,937,600	13,000
							April 2, 1897	65	4,560,000	13,437
23	M.	7	1½ yrs.	Aunt has phthisis, otherwise neg.	Tub. of hip-joint, with large abscess above and behind, gravitating down.	Traction. Abscess opened Feb. 13, '97.	March 4, 1897	67	5,100,000	16,875
							March 6, 1897			15,450
							March 9, 1897			23,237
							March 10, 1897			22,250
							March 11, 1897	105		25,045
26	F.	3½	7 mos.	Negative.	Second stage hip dis. with abscess which began to show April 3, '97.	Traction.	March 4, 1877	65	4,852,800	18,800
							April 3, 1897	62	5,000,000	12,190
29	M.	5½	16 mos.	A sister had white swelling.	Tub of head of L. femur, with large abscess	Traction.	March 3, 1897	80	5,200,000	10,000
							April 6, 1897	90	4,720,000	9,390
64	M.	9½	1⅓ yrs.	Negative.	Tub. of head of L. femur, with abscess which opened spont. 24 hrs. before exam.	Traction.	April 3, 1897	85	4,804,000	8,330

HIP JOINT TUBERCULOSIS, WITHOUT ABSCESS.

NO OPERATIVE INTERFERENCE.

5	F.	7	5 mos.	Negative.	Tub. R. hip, limited abduction; pain in knee, limited rotation inward.	Traction.	Sept. 22, 1897 March 25, 1897	63 90	4,260,000 4,480,000	20,000 9,060
14	F.	13	5 wks.	Mother died pul. tub. 3 yrs ago.	Tub. of head of L. femur; joint rigid from spasm.	Traction.	Dec. 30, 1896 Feb., 1897 (Symp. of pul tub. develped.) March 29, 1897 (Died Ap. 6,'97, of pul. tub.)	73 67	5,000,000 4,120,000	7,250 12,185
25	F.	5	2½ yrs.	Sister **had** vent. tub.	Tub. of L. hip.	Traction.	March 4, 1897	84	5,264,000	6,875
28	F.	6	14 mos.	Negative.	Tub. of head of R. femur.	Traction.	Feb. 28, 1897 April 6, 1897	78 91	3,665,000 4,560,000	10,330 9,687
61	M.	10	1¼ yrs.	Pat. uncle phthisis	Tub. of head of R. femur. Abscess healed some months ago.	Traction.	March 29, 1897	75	4,332,000	6,250
62	F.	18	4 yrs.	Negative.	Tub. of R. hip.	Traction; splint.	March 29, 1897	55	3,040,000	9,375
68	F.	2½	1 yr.		Tub. of R. hip, 1st stage.	Traction.	April 6, 1897 April 18, 1897	66 62	4,600,000 5,600,000	15,000 12,400
72	F.	3	6 mos.	Negative.	Tub. of R. hip.	Traction.	April 12, 1897	75	4,700,000	10,312
73	F.	5	2 yrs.	Negative.	Tub of R. hip.	Traction; splint.	April 10, 1897	63	5,360,000	8,545

VERTEBRAL TUBERCULOSIS, WITH ABSCESS.

A.—Operative Interference.

Case No.	Sex.	Age.	Duration.	Family History.	Location and Extent.	Treatment.	Date of Count.	Hæmoglobin Per Cent.	Erythrocytes.	Leucocytes.
7	F.	4	1 yr.	Negative.	Kyphosis 11th and 12th D. V. Abscess in R. iliac region.	Abscess incised and curetted Feb., '96. Sinus presisting Feb., '97.	Feb. 1, 1897	55	4,080,000	12,500
							March 29, 1897	72	5,120,000	10,310
20	F.	3¾	2 yrs.	Negative.	Tub. disease 11th and 12th D. V. Psoas abscess increasing in size, Feb. 1, '97.	Jacket and traction to Feb., '97. Abscess incised Feb. 15.	Feb. 3, 1897	50	4,400,000	14,700
							Feb. 13, 1897	55		16,250
							Feb. 27, 1897	45	4,160,000	15,625
							March 4, 1897	53		23,248
							March 6, 1897			25,030
							March 18, 1897	47	4,026,400	11,800
							March 26, 1897	50	4,200,000	17,500
56	M.	4	1½ yrs.	Consumption in gr. mother, 2 aunts and father.	Vert. tuberc, with psoas abscess; presisting sinus.	Abscess opened Feb. '96. Traction.	March 24, 1897	50	4,440,000	13,125
							April 16, 1897	58	4,820,000	11,600
59	M.	11	5 yrs.	Negative.	Vert. tub. with psoas abscess, opened in '92 and '95. Many presisting sinuses.	Abscess opened 3 times and curetted. Traction.	March 24 1897	33	4,040,000	13,750
							April 15, 1897	32	4,040,000	19,200

B.—No Operative Interference.

Case No.	Sex.	Age.	Duration.	Family History.	Location and Extent.	Treatment.	Date of Count.	Hæmoglobin Per Cent.	Erythrocytes.	Leucocytes.
19	F.	4	1½ yrs.	Negative.	Tub. of lower lumbar vert., with abscess behind L. trochanter, increasing in size. Noted 6 weeks before Feb. 3.	Jacket; no traction.	Feb. 3, 1897	55	5,850,000	8,125
							March 16, 1897 (Abscess smaller.)			
							March 30, 1897	85	5,520,000	7,500
20					(*See Case 20A.*)	Abscess incised & curetted Feb. 15				
22	M.	8½	3 yrs.	Negative.	Scoliosis and kyphosis tub. of 9-12 D and 1st lumbar V. Abscess in L. iliac region getting larger, Feb. '97.	Traction.	Feb. 4, 1897	80	4,640,000	7,150
							April 2, 1897	85	5,140,000	8,905
66	F.	4	2 yrs.	Negative.	Vert. tuberc., with large psoas abscess.	Traction.	April 6, 1897 (12 hrs. p. c.)	89	5,280,000	10,520
69	F.	7½	10 mos.	Negative.	Kyphosis upper dorsal, with abscess in infrascapular region; 3 mos. duration.	Traction.	April 10, 1897	78	5,120,000	11,250
							April 20, 1897	73	5,600,000	10,000

TUBERCULOSIS AT OR NEAR KNEE-JOINT.

Case No.	Sex.	Age.	Duration.	Family History.	Location and Extent.	Treatment.	Date of Count.	Hæmoglobin Per Cent.	Erythrocytes.	Leucocytes.
					No Abscess.	*No Operation.*				
15	F.	9¾	20 mos.	Negative.	Tub. synovitis L. knee, with effusion.	Inclined plane and traction.	Dec. 30, 1896 March 25, 1897	75 66	4,080,000 4,360,000	11,350 7,500
58	M.	11½	10 yrs.	Negative.	Flexion of knee from tub. disease.	Traction; extension.	March 23, 1897	100	5,200,000	8,812
70	F.	5¾	20 mos.	Pat. aunt died of phthisis.	Tub. synovitis, both knees.	Aspiration; rest in bed.	April 11, 1897	84	4,920,000	12,250
					No Abscess.	*Operation.*				
27	F.	1	3 mos.	Both mat. gr. parents died of pht.	Tub. R. knee and R. elbow (elbow incised by quack) reason unknown		March 4, 1897	53	4,600,000	15,625
32	F.	2½	7 mos.	Aunt had hip disease.	Tub. focus in upper epiphysis of L. tibia.	Epiph. removed Jan., '97. Union by 1st intention, Mar. 16. Despite healing there is evident tub. of synovial membrane.	March 6, 1897 April 15, 1897	70 73	5,162,200 4,600,000	10,515 12,200
39	M.	4½	3¼ yrs.	Negative.	Slight kyphosis of 7th and 8th D. V. Tub of L. knee; very little motion, swelling around femr'l epiphyses.	Condyles trephined and foci removed; no pus.	March 5, 1897 April 18, 1897	70 73	5 040,000 5,600,000	12,500 6,200
63	M.	2	3 mos.	Negative.	Limp, pain and tenderness in L. knee; no marked enlargement.	Trephining.	March 29, 1897	72	5,200,000	8,650
71	M.	8	2 yrs.	Negative.	Tub of knee.	Removal of tub. granulations from synovial membrane. Curetting.	April 11, 1897 (17 hrs. p. c.)	82	5,680,000	11,875
					Abscess and	*Operation.*				
48	M.	7	4 yrs.		Tub. of knee and fingers; enlarged cervical glands.	Amputation above knee and of several fingers. Innumerable abscesses now.	March 23, 1897 April 18, 1897	46 50	3,880,000 5,600,000	11,875 14,800
50	M	7	1½ yrs.	Negative.	Tub. of knee, with abscess in epiphysis of femur & popliteal space.	Curetting Jan., '97	*March 21, 1897	100	5,172,000	14,155
51	M.	6¾	2 yrs.	Mat. grandfather died of phthisis.	Tub. synovitis of knee, with abscess.	Tub. focus removed at op., May, '96. Dischrgd Mar. 30,'97, cured.	March 21, 1897	87	4,680,000	9,065
53	M	10	2½ yrs.		Tub. of knee, with abscess which opened spontaneously 2 yrs. ago.	Epiphysiotomy in Apr.,'96. Sinus discharging.	March 23, 1897	68	4,920,000	7,500

* Child has been running very high temperature for some days; once subnormal (March 20); not much food for some days.

VERTEBRAL TUBERCULOSIS, WITHOUT ABSCESS.

2	F.	10	5 yrs.	Aunt died of phthisis pulm.	Tub. disease middle dorsal region.	Splint traction.	Sept. 22, 1896 March 28, 1897	70 85	3,145,000 4,720,000	10,812 8,750
17	F.	2½	1 yr.	Negative.	Tub. disease middle dorsal region.	Rest in bed; no traction.	Jan. 2, 1897 March 30, 1897	72 85	4,900,000 4.960,000	15,600 7,500
18	F.	4	16 mos.	Negative.	Tub. disease 5th and 6th dorsal vert.	Splint traction.	Jan. 2, 1897 April 2, 1897	90 75	6,536,000 4,280,000	6,250 5,625
31	M.	3¼		Brother, Case 21.	Tub. disease 5th dorsal vertebra. Tub. disease L. hip; incipient.	Splint traction.	March 6, 1897 April 18, 1897	43 73	5,040,000 5,280,000	13,125 15,600
35	F.	6	3 yrs.	Negative.	Kyphosis 5th, 6th & 7th dorsal vert. No active disease now.	Brace and Jacket.	March 4, 1897	76	4,532,800	7.500
40	M.	2¾	6 mos.	Negative.	Tub disease 11th & 12th dorsal vert.	Splint traction.	March 8, 1897 April 17, 1897	52 62	5.080,000 5,200.000	17,440 12,400
52	M.	7	2½ yrs.	Negative.	Tub. disease 7th & 12th dorsal vert.	P. P. jacket and brace.	March 23, 1897 April 18, 1897	57 73	5,600,000 5,360,000	14,375 9,900
65	M.	5½		Negative.	Tub. disease lower dorsal vertebra.	Rest in bed; no traction.	April 1, 1897	82	4,400,000	10,625
67	M.	2⅓	9 wks.	Mother had pulm. tub	Tub. disease lower dorsal vertebra.	Rest in bed; no traction.	April 6, 1897	70	3,800,000	10,000

TUBERCULOSIS AT ANKLE-JOINT

Abscess and Operation.

47	M.	5		Father died of pht.	Tub. of R. ankle joint; curetted.	Curetted May, '95; Feb., '96. Mar., '97. Sinus presisting.	March 25, 1897	100	5,160,000	5,900

TUBERCULOSIS OF HIP-JOINT AND VERTEBRAL COLUMN COMBINED.

					No Abscess.	*No Operation.*				
49	M.	7	5 yrs.	Negative.	Tub. of hip and kyphos.	Traction, splint and jacket.	March 23, 1897	67	5,040,000	6,875
					Abscess and	*Operation.*				
43	M.	6	2 yrs.	Negative.	Spina-ventosa and osteo arthritis, hip.	Abscess opened Jan., '96. Curetted March, '97.	March 11, 1897 April 15, 1897	48 47	4,000,000 4,280,000	9,850 9,200
60	M.	14	10 yrs.	Negative.	Tub. of middle dorsal vert. and hip.	Numerous operations over Cyrs. Pat. died April 4, '97.	March 25, 1897	47	2,830,000	5,100

The family history was obtained in full in 69 cases, and showed: (1) Absolutely negative results in regard to tuberculosis in 47 cases, or 68 per cent. (2) Negative in regard to direct inheritance in 59, or 85 per cent. (3) Direct family history in parent, grand, or great-grand-parent in 10, or 15 per cent., of which only 2 cases showed a family history in more than one other generation, and in no case were both parents affected. The direct influence of heredity is certainly a very small one.

From the distribution of the lesions and the varying history of injuries, the small value which can be attached to injury as an etiological factor is shown. It is so easy to obtain the history of an injury to the child if stress be laid on the question, that only in exceptional cases have I been able to attach much import to any particular injury reported by the parent. The fact that in this list of cases the hip is attacked more than twice as often as the vertebral column, and more than three times as often as the knee, which is eternally black and blue in a child from injury, and as the list shows no case of primary tuberculosis of wrist, elbow, or shoulder joints, it seems to me likely that too much stress has been laid on injury as an etiological factor.

I am more inclined to the belief that anemia from malnutrition and the accompanying lowered resistance of the blood to the invasion of the bacillus tuberculosis, are the most important factors in the etiology of bone tuberculosis. A large proportion of these cases show abundant cause for a secondary anemia in the history of having been bottle-fed as babies, of having had serious digestive disturbances, and of having been delicate always.

Of the *technique* employed in these examinations I shall say nothing further than to recount the methods employed and standards taken, so that comparisons with subsequent work in this line may be made accurately. The hemoglobin determinations were made with v. Fleischl's instrument and the Thoma-Zeiss blood corpuscle counting apparatus was used for the counts—a dilution of 20 volumes with .3 per cent. solution of common acetic acid being used for leucocytes, and Heyeni's solution to 200 volumes dilution for erythrocytes. The differential counts were made from coverslip preparations made at the time of examination and stained with Neusser's modification of Ehrlich's triacid stain, and eosin and hematoxylin.

The normal number of erythrocytes in male children I have taken at 5,000,000 per cubic millimeter of blood, and in females at 4,500,000. Hemoglobin in males is normal at 90 to 100 per cent., and in females as low as 80 per cent. is not incompatible with a perfectly healthy color appearance to the erythrocytes. This great variation in the normal amount of hemoglobin is not so marked in childhood.

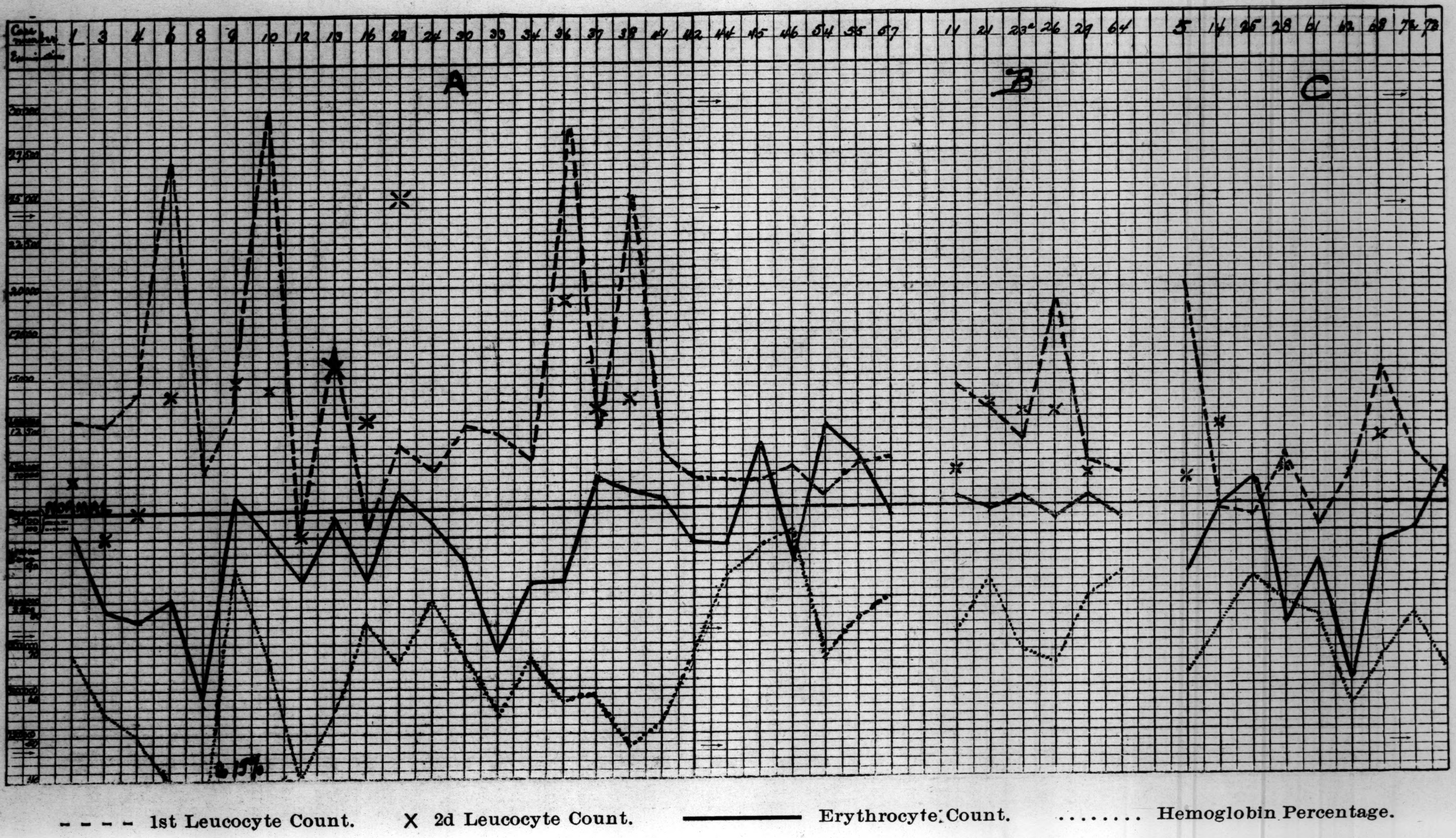
Leucocytes settle down to about 10,000 per c.cm. shortly after birth, and slowly diminish until the sixth year, when the constant point of 7,500 is reached. An increase above 2,000 per c.cm. is counted in my paper as leucocytosis. The counts were all made from 3½ to 5½ hours after meals, at which time the digestive leucocytosis has generally subsided. In referring to abscess formation, I mean a clinically demonstrable accumulation of pus.

Laache, among his early observations upon cases of tuberculosis in general, makes this statement: "Tuberculosis, in itself, in most cases, gives no appearance of marked anemia." The pallor of the skin is in marked contrast to the redness of the mucous membranes, the number of erythrocytes is not diminished, and the hemoglobin is surprisingly high. The general statement is also made by different authorities, that in pure tuberculosis of all organs, there was an absence of change in the leucocyte conditions. Many observers fail to distinguish between simple tubercular infection and a combined infection with one of the pathogenic organisms, so that their deductions are valueless in this discussion.

The work of Dane, of Boston, on the blood in bone tuberculosis, is the only extended observation I know of, and it is an admirable effort to put the subject in shape to be of use, and to show that a careful study of the blood, in this form of tuberculosis at least, does show interesting and important changes. I shall make Dane's conclusions a basis of criticism in presenting the results of the study of my cases.

The degree of anemia in purely tubercular bone disease seems to depend on: (1) The age of the child; and (2) The duration and extent of the process, young children showing effects much more markedly than older ones, and a long continuance of the process under unfavorable circumstances telling decidedly on the child.

The resemblance of the secondary anemia of tuberculosis to chlorosis has caused the Vienna school to adopt the name chloranemia tuberculosa. Dane's observation that "the percentage of hemoglobin in bone tuberculosis is generally diminished, giving rise to mild chlorosis," should be changed to "giving rise to secondary anemia which may reach any grade of severity." Chlorosis belongs to the primary anemias, whose causal factor is unknown. The decrease in percentage of hemoglobin is best shown on the accompanying chart—the lowest line indicating the percentage present in each case.

Case number
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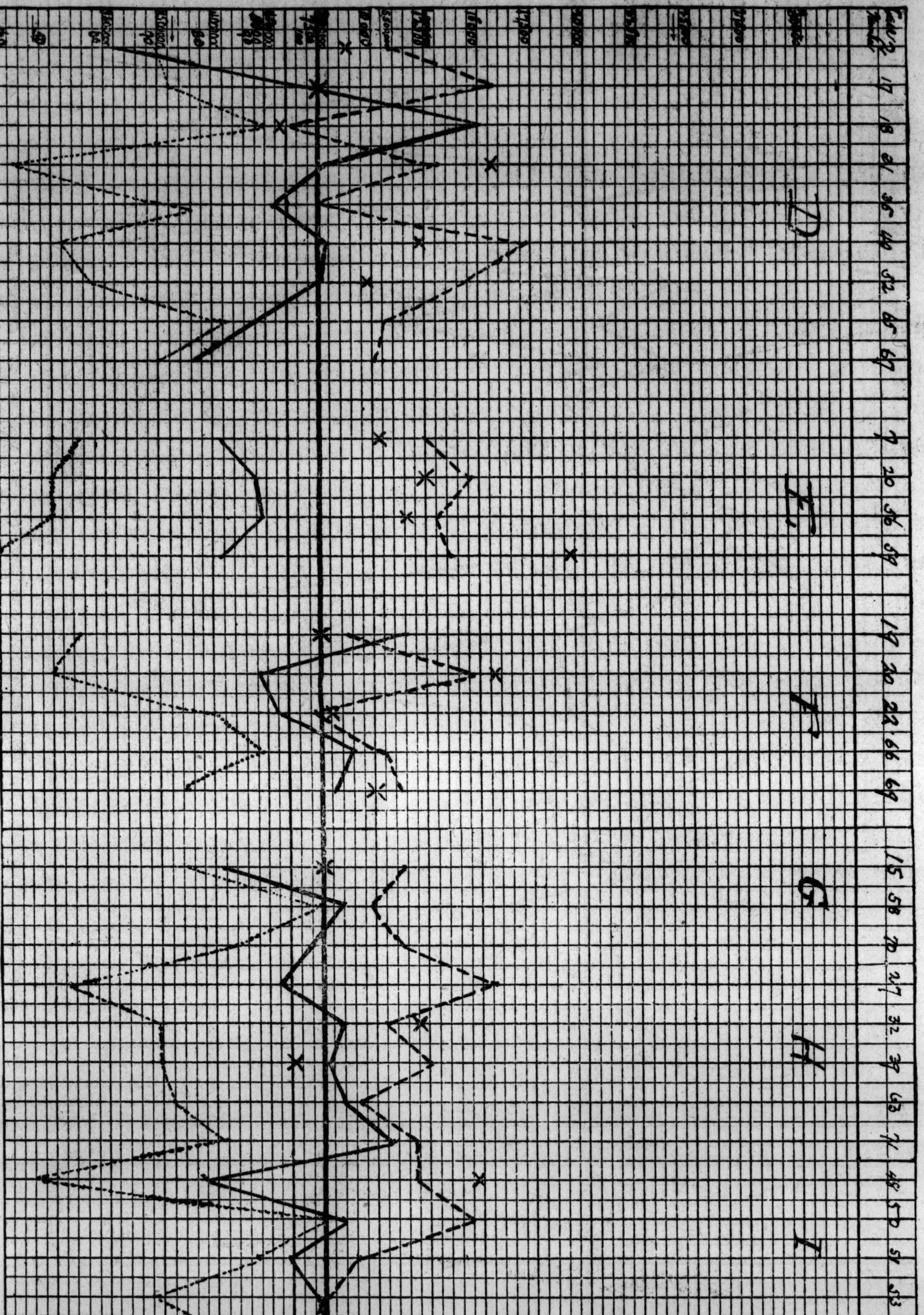
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Cases 7, 19, 20, 40, and 56 are young children who have had a long continued process. Cases 27, 49, 52, and 59, long continued and extended process. Case 27 is a baby one year old. Cases 6, 8, 12, 13, 33, 43, 48, and 60, are long standing cases with extensive disease and a complication of septicemia.

The point in regard to the general absence of a decrease in the number of red corpuscles in most cases is well illustrated in the cases presented. In cases 8, 33, and 60, we have the low count explained by the presence of a septicemia in cases of extensive bone disease. Cases 8 and 60 died, and in case 33, a boy of 14 years, the leg was taken off at the hip owing to the wide extent of the disease. Cases 2 and 62 are of many years' standing, without proper treatment at the time of the first examination.

I have referred already to the statement of most authorities that the leucocytes in pure tuberculosis of all forms, present no very marked change in number, tuberculosis being one of the few pathological processes which do not show leucocytosis under ordinary conditions. The observations of Holmes, of Denver, published in the *New York Medical Journal*, last fall, on the diagnosis of tuberculosis by blood examinations, I have been unable to confirm in any respect.

The appearance of a high leucocyte count, especially in hip disease, has been held by Dane to indicate the presence of an abscess, or that one is about to be found, and he cites 4 cases to illustrate. The counts were 14,000, 15,000, 20,000, and 30,000. In all but the third case, abscess formed within seven months. Among my cases this point is not fully substantiated. The observation is corroborated by Case 26, in the second stage of hip disease, in which no abscess showed on March 4, 1897, when the leucocyte count was 18,800. On April 3d, it was definitely determined that an abscess was present and the leucocyte count that day was 12,190. Pus aspirated from the abscess was negative to culture and coverslip examination. Case 31 may also prove to illustrate Dane's point. The leucocyte count has increased in six weeks from 13,000 to 15,600, but as yet no abscess has formed.

Six of my cases, on the other hand, have presented conditions which would go to disprove Dane's point. All of them presented a more or less marked leucocytosis at first examination, and at the second examination, from two weeks to six months later, no abscesses had developed, and in every case the count was less.

Case No.	First exam.	Second exam.	Interval.
5	20,000	9,060	6 months
17	15,600	7,500	3 months
39	12,500	6,200	6 weeks
40	17,440	12,400	5 weeks
52	14,375	9,900	1 month
68	15,000	12,400	2 weeks

I should be inclined therefore, to modify very much the conclusion drawn by Dane, by saying that a case may go on to abscess formation without any increase in the number of leucocytes, and give every appearance clinically and through blood examination, of improvement (Cases 19, 22, 29). Undoubtedly purely tubercular there ever having been a leucocytosis. When, however, such a case begins to show an increase in the number of leucocytes, one of two things has happened—either a secondary infection has occurred (Cases 20, 23), or there is a considerably increased activity in the tubercular process (Cases 14, 21, 31, 32).

Case 14.—A girl of 13, with tubercular disease of head of left femur; five weeks' duration at time of first examination. Leucocyte count January 1st, 7,250; March 29th, 12,185. In February, pulmonary tuberculosis developed, with hemorrhages from the start. Death early in April.

Case 21.—Boy, 2½ years. Had tubercular disease of the head of the left femur, with an abscess. The process was of five months' duration at the date of first count February 4th, Hgb. 84 per cent.; erythrocytes, 4,900,000; leucocytes, 13,000. April 2d, Hgb. 63 per cent.; erythrocytes, 4,500,000; leucocytes, 13,400. Attempts at cultures on blood serum from pus aspirated April 8th, and from coverslips were negative.

Case 31.—Boy of 3¼ years, with tubercular disease of fifth dorsal vertebra and left hip trouble beginning. March 6th, Hgb. 43; erythrocytes, 5,000,000; leucocytes, 13,125. April 18th, Hgb. 73; erythrocytes, 5,280,000; leucocytes, 15,600. *Clinical note.*—"Fever, appetite bad, local condition not improving."

Case 32.—Girl, 2½ years old, with a tubercular focus in upper epiphysis of left tibia, of seven months' duration. Focus removed January 1st; union by first intention. March 6th, Hgb. 70: erythrocytes, 5,162,000; leucocytes, 10,515. April 18th, Hgb. 73; erythrocytes, 4,600,000; leucocytes, 12,200. *Clinical note.*—March 16th, "Despite healing there is evident an active tuberculosis of the synovial membranes."

Cases 20 and 23 showed abscesses at the time of first examination, and leucocytosis, the counts being 14,700 and 11,250 respectively on February 3d. Ten days later the count, twelve hours after a feeding, stood 16,250 and 12,185, an increase in each case. On the abscesses of considerable size may be formed and be absorbed without theory of Gage, of Worcester, that this was an indication of secondary infection, and that the time for opening had come, both abscesses were opened immediately. Cultures on nutrient gelatine and agar-agar, and coverslips were negative in both cases.

Commenting on Gage's statement (*Boston Medical and Surgical Journal*), I would simply say it is a well known law that all secondary infections cause leucocytosis, but that a moderate leucocytosis in a case with tubercular abscess, probably has its cause in the sudden activity of the tubercular process, as I have already pointed out.

All the cases of primary tubercular abscess showing any degree of leucocytosis were examined most carefully in regard to this point. Pus was aspirated in every case but one, and cultures on blood serum were attempted and coverslip preparations examined. In every case, as in Cases 20 and 23, the result was negative.

CASE 11.—February 1, 14,370. March 29, 9,685. Abscess smaller; no aspiration.

CASE 21.—February 4, 13,000. April 2, 13,437. Aspirated April 8, negative.

CASE 26.—March 4, 18,800. April 3, 12,190. Aspirated April 15, negative.

CASE 29.—March 3, 10,000. April 6, 9,390. Aspirated April 8, negative.

CASE 66.—April 6, 10,520. Aspirated April 13, negative.

CASE 69.—April 10, 11,250. Aspirated April 13, negative.

This concerns also Dane's statement, that with abscess formation low leucocyte count indicates absence and a high count the presence of secondary infection with pyogenic organisms. It becomes a most important question to know what is meant by a high count. In Case 20, the pus at operation was negative, although just previous to operation the count was 16,250, showing an increasing leucocytosis. Two weeks later the count was 15,600. One week after that it was 23,000, and agar-agar cultures showed the staphylococcus pyogenes aureus. Case 23, showing the same condition and operated on at the same time showed an increase of 4,500 in the leucocyte count three weeks after operation, making the count 16,800, and cultures showed the same organism. The patient developed tubercular meningitis and died five weeks after operation. No autopsy obtained.

Judging from these two cases it seems difficult to say what is the lowest count which may be said to constitute the leucocytosis of secondary infection, and I would clear the ground partly by saying that if the known causes of leucocytosis be excluded, a rapid increase of several thousand in the leucocyte count in a case with tubercular abscess is most significant of secondary infection, for Cases 14, 20, 21, 23, 31, and 32 show that other causes—probably an activity in the tubercular process make an increase in the leucocyte count. From the surgical point of view either cause of the increase might indicate the necessity of surgical interference.

That the leucocyte count bears no direct relation to the temperature, another observation of Dane's, I can fully corroborate. The only relation which exists is where the cause of a leucocytosis is also the cause of the fever, as in a secondary infection. Even here there is no constant relation between the two. The absence of relation is perhaps best illustrated in the fever following a malarial chill and in the continued high temperature of typhoid fever where there is a diminished rather than increased number of leucocytes.

The leucocytosis which occurs from the infection of the large open wounds following operations on tubercular bone is fully illustrated by 40 of the cases coming to operation. Infection is bound to follow the long continued dressing of these wounds. The leucocytosis, in nearly all cases, is very high for a period after the infection, and then it gradually falls unless the sepsis is acute and threatens the life of the patient, in which case it may remain high until a crisis is reached. If the resistance of the patient is good and the case progresses favorably, the leucocytosis slowly disappears and the hemoglobin percentage increases. If the anemia was of the second degree of severity and the erythrocytes had greatly decreased, there occurs also an increase in their number. (Cases 1, 3, 4, 16, etc.)

The failure of the hemoglobin percentage to rise and of the number of red blood corpuscles to increase, provided they were diminished, is a certain warning of an unfavorable condition in spite of the diminution of the leucocytes to the normal or below (Cases 8, 60). Stating the case generally, marked leucocytosis follows secondary infection with a pyogenic organism in children where the recuperative power is good, and the leucocytosis disappears as the recuperation goes on, or as the pyogenic material overcomes the recuperative power. In the first case the anemia disappears, and in the second case it remains stationary or grows worse.

Before concluding, I wish to state that all of the 73 cases examined were from the clinic at the Children's Hospital, or from the private practice of Dr. H. M. Sherman, and I wish to acknowledge my indebtedness to him for his kindly help and many suggestions in carrying on this study.

Resume.—1. No decrease in erythrocytes, except in secondary anemia of second and third stages, which comes: (*a*) in long standing and extensive cases; (*b*) in very young children; (*c*) in septic infection.

2. Hemoglobin is decreased in all cases and in proportion to the same factors which influence the erythrocytes.

3. The return to health is indicated by the tendency of blood to return to the normal.

4. Abscess formation, not necessarily accompanied by leucocytosis. Slowly developing leucocytosis points to activity in the tubercular process. Rapidly developing leucocytosis points to secondary infection with pyogenic bacteria. Abscess may be absorbed without a leucocytosis having developed.

5. In septic infection of wounds, leucocytosis is marked at first and diminishes as the resistance of the child increases or decreases. If the diminution is accompanied by an increased anemia, it is a sign of the lowered vitality of the child.

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MEMORANDA.

Possible Untoward Effects of Piperazine.

H——, of excellent habits, and free, as far as could be ascertained, from personal and family taint of rheumatism, was taken in December, 1896, with moderate pain, tenderness, and swelling of the metatarso-phalangeal joint of the right great toe; a few days later the corresponding joint of the left foot became implicated, and still later nearly all of the joints of both the upper and the lower extremities. The urine was scant and acid. The usual remedies failing, the patient was put on ichthyol, in 10-minim doses, four times a day; to this, a week later (February 14, 1897), was added piperazine—15 grains t. i. d. Under the piperazine, the urine cleared quickly, but the rheumatic symptoms were uninfluenced. In three or four days, however, the patient noticed a twitching of the muscles, particularly of the forearms, which gradually increased to such an extent as to throw a cup, newspaper, or other object, out of his hand. The piperazine having been suspended, the spasm was relieved within 24 hours and disappeared entirely within two days.

SACRAMENTO, CAL. W. A. BRIGGS.

Replacement of the Retroverted Uterus.

No other procedure of minor gynecology, particularly in subjects with thick abdominal walls and uncontrollable abdominal reflexes, has given me so great and so frequent annoyance as replacement of the retroverted uterus. It was, therefore, with no slight satisfaction that, some months ago, I devised a method simple both in conception and execution, which not only most effectually subserved my immediate purpose, but since that time, in every instance of uncomplicated retroversion that has come under my care, has made me easily master of the situation. Having put the method to severe and repeated test I submit it to the profession with the fullest confidence in its simplicity and effectiveness. It is briefly as follows: (1) Put the patient on the back with the shoulders slightly elevated, and with the knees drawn up, and, if convenient, supported by legholders so as to relax the abdominal walls; insert a Hodge pessary corresponding to the size and form of the vagina, being sure to carry the posterior bar back of the cervix. (2) Introduce the index finger into the vagina above the anterior bar of the pessary which will pass between the index and the middle finger up to the digital commissure; crowd the pessary gently but firmly backward horizontally against the rectum so as to pass the posterior bar well back to the fundus before exercising leverage. (3) Hold the pessary firmly against the rectum; place the tip of the right index against the anterior surface of the cervix and push backward, while with the digital commissure the anterior bar of the pessary is crowded backward and downward so as to exert leverage on the fundus and carry it upward and forward when it is caught by the fingers of the left hand bearing down the abdominal wall along the hollow of the sacrum and brought forward into exaggerated anteversion. If from great thickness of the abdominal walls or from impaction of the uterus between the utero-sacral ligaments, reposition is likely to be unusually difficult, proceed as in "1," but modify the subsequent procedure as follows: (2*a*) Carry a bullet forceps above the anterior bar of the pessary into the vagina and catch the anterior lip of the cervix securely; introduce the right index finger beside the forceps into the vagina. (3*a*) With the digital commissure crowd the pessary horizontally backward, while with the bullet forceps in the left hand the cervix is drawn forward and downward: holding the pessary and forceps in position, place the tip of the right index finger against the anterior face of the cervix just above and resting on the jaws of the forceps; then with the tip of the index finger exerting backward pressure on the cervix and downward pressure on the bullet forceps, and, with the digital commissure, exerting backward and downward pressure on the anterior bar of the pessary, seize and bring forward the fundus as in "3." While I have never had to resort to it, the Trendelenburg position, in cases of unusual difficulty, might facilitate the execution of this maneuver.

SACRAMENTO, CAL. W. A. BRIGGS.

DEPARTMENTS.

OBSTETRICS, GYNECOLOGY AND PEDIATRICS.

By WALLACE A. BRIGGS, M.D., Sacramento, Cal., and
WM. FITCH CHENEY, B.A., M.D., Adjunct to the Chair of Obstetrics and Diseases of Women and Children, Cooper Medical College, San Francisco, Cal.

Obstinate Vomiting in Pregnancy.—DR. EDWARD P. DAVIS reports 6 cases of obstinate vomiting in pregnancy, 5 of which died in spite of all offorts to relieve them; the sixth was still alive and under observation but not yet delivered. His conclusions, from his experience with such cases, are: (1) The absolute necessity of skilled and thorough care when the nutrition of the pregnant woman suffers from nausea or vomiting. (2) The duty of the physician to at once make a thorough local examination, and to place the uterus in as favorable a position as possible; this failing, he should promptly dilate the cervix. (3) When these two methods of treatment are not followed by speedy relief and improvement in assimilation, the pregnancy must be terminated. The great difficulty is that danger is not apprehended, with many of these patients, until interference is too late to save life.—*American Gynecological and Obstetrical Journal*, April, 1897.

Puerperal Infection through Abrasions of the Vagina.—DR. RICHARD C. NORRIS calls attention to the fact that puerperal infection not infrequently occurs through tears or abrasions in the vagina. When septic fever is found, the uterine douche and curette are often resorted to without careful inspection of the vagina first. No good can come from such intra-uterine treatment, if the real source of infection is elsewhere, and is not discovered and properly treated. Vaginal ulcerations or necrotic areas, when found, should be cleaned and then cauterized with a 50 per cent. solution of chloride of zinc, or a 60-grain-to-the-ounce solution of nitrate of silver, after which antiseptic vaginal douches should be used for several days.—*American Journal of Obstetrics*, April, 1897.

The Use of Opium in the Diarrheal Diseases of Infants.—DR. FLOYD M. CRANDALL presents, as follows, the indications and contraindications for the use of opium in the diarrheas of young children: *It is contraindicated:* (1) In the first stages of acute diarrhea, before the intestinal canal has been freed from decomposing matter. (2) When the passages are infrequent and of bad odor. (3) When there is a high temperature or cerebral symptoms are present. (4) When its use is followed by elevation of temperature or the passages become more offensive—symptoms which indicate toxic infection from petrifying contents. *It is indicated:* (1) When the passages are frequent, with pain. (2) When the passages are large and watery. (3) In dysenteric diarrhea, together with castor oil or a saline. (4) In late stages, with small, frequent, nagging passages. (5) When the passages consist largely of undigested food, and the bowels act as soon as food is taken into the stomach.—*Archives of Pediatrics*, May, 1897.

SURGERY AND ANATOMY.

By T. W. HUNTINGTON, B.A., M.D., Surgeon Southern Pacific Company's Hospital, Sacramento, Cal., and
GEO. B. SOMERS, M.D., San Francisco, Cal.

The Better Operation for Hemorrhoids.—VAUX gives the following conclusions based on 500 cases: The advantages of the clamp and cautery are as follows: It is antiseptic; not only can the clamp be readily sterilized, but the cautery itself is the most powerful germicide. There are no sloughs to separate as in the ligature operation. No ligatures or sutures to offer any chance for infection. It is a radical cure. The operation is a rapid one. The time of convalescence can be definitely fixed—eighth day. The operation, which was formerly but little employed, is now in high favor in the New York Hospital. The record of hemorrhage, pyemia, or death, is almost negative.—*Mathews' Quarterly Journal*, April 1897.

Soft Corns Between the Toes.—When these corns occur in severe form, PHELPS removes all of the soft tissues on the inner side of two of the toes, removing the corn, and stitching the two toes together. The procedure does not in the least impair the usefulness of the foot, whereas the removal of the toe must necessarily do so to a certain extent.—*Post-Graduate*, April, 1897.

OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

By WM. ELLERY BRIGGS, M.D., Sacramento, Cal.

The Importance of Exact Correction of Refractive Errors in School Children.—DR. CARHART places great stress upon the importance of correcting errors of refractions in children to avoid subsequent changes from the congestion and weakening of the eyes. The rising generation uses its eyes much more for close work than previous generations have, and the correction of the small errors early in the child's life is likely to obviate eye strain, and a very important chain of symptoms resulting in distension, and finally in myopia. It has been demonstrated that children who have had their astigmatism and hypermetropia corrected are much less likely to become myopic than those whose ametropia goes uncorrected. The constantly increasing amount of work at short range that is required of children's eyes will certainly have a marked influence upon the refraction, and when the child's hygienic surroundings—light, ventillation, food, etc.,—are not suitable, the eyes are sure to suffer. The practice of allowing opticians and spectacle venders, who have no medical education and no knowledge of the pathological conditions of the eye, to prescribe glasses especially for children is strongly condemned. It is especially injurious for children to wear incorrect glasses, and the correction of errors of refraction offers many more more difficulties than in grown people. The strain of accommodation caused by the increased demands of modern schools in the effort to crowd into the early years of childhood a superficial knowledge of a multitude of subjects, has resulted in harmful congestion of the delicate ocular tissues. In the plastic years of childhood the eyes are soft and yielding, and ocular distension, both anteriorly and posteriorly, is the natural consequence of undue strain. Increase of the optic axis, or tendency to myopia, is more marked, because the eyeball is weaker at its posterior pole, but alteration of the curve of the cornea, causing astigmatism, also occurs in the majority of cases. The bright side of the picture is that exact correction of refractive errors in childhood usually arrests their development, and once safely past the years of immaturity, the adult eye does not often succumb under hygienic conditions, with good health and strong vitality, to the ordinary demands of civilization.—*New York Medical Journal*, June 12, 1897.

DERMATOLOGY, SYPHILIS AND VENEREAL DISEASES.

Hereditary Itch in Brittany.—Under this curious title the *Indépendance Médicale*, for May 5th, publishes an abstract of an article from the *Anjou Médical* for March, in which the author, M. ATGIER, states that the acarus scabiei is a faithful and time-honored inhabitant of many a Breton's cottage. The skin diseases which it gives rise to are the hereditary and constant portion of certain households from which the boys, when they reach the age of conscription, are subject to an examination at the hands of military surgeons. After several days of treatment, if the disease is not of long standing, the acarus is destroyed in the epidermic grooves. The young soldier may then take up the ordinary mode of life in the barracks without exposing his companions to any contagion, and he may remain during the period of his military service free from the itching; but as soon as he returns to his home the pitiless inhabitant fastens itself upon him again, and is thus preserved during its life, to be faithfully transmitted to his heirs or successors. The number of Breton subjects affected with the itch is estimated at about 25 per cent. by the author. Whether, he says, the Breton epidermis is less easily affected by the presence of the acarus scabiei than that of others, owing to a long course of hardening, or whether the insect is not so vicious in Brittany as elsewhere, the fact remains that a great many conscripts present cutaneous affections of long standing, which are, without doubt, caused by this insect, but which they themselves are unaware of.—*New York Medical Journal*, June 5, 1897.

MATERIA MEDICA AND THERAPEUTICS.

By Wm. Watt Kerr, M.A., M.B., C.M., Professor of Clinical Medicine, University of California, San Francisco.

A Case of Recovery from Albuminuric Retinitis.—Dr. James Hinchelwood reports a case of severe albuminuric retinitis, with recovery of the patient's sight and general health. Mrs. S——, æt 65, consulted her physician about a month after she noticed her feet and legs to be greatly swollen. When the doctor saw her her face was puffy, and from the condition of her urine he diagnosed Bright's disease. Soon after she had severe headache, vomiting, convulsive seizures, and was comatose for several days. Four months from the appearance of the first symptoms her vision was found to be only equal to seeing large objects like the hand. Albuminuric neuro-retinitis was found to be present. The discs were swollen, greyish red in color, and the edges were completely obscured. A group of brilliant white spots arranged in radiate fashion surrounded the macular region in each eye, being most abundant in the right. There was diffuse opacity of the retina, and a few hemorrhages scattered over the fundus. The urine was pale in color, specific gravity 1008, and contained considerable albumen. There was no cardiac hypertrophy or notable elevation of arterial tension. The patient was placed upon strict milk diet and given mild saline diuretics, which were afterwards replaced by iron and strychnine. The patient's vision rapidly improved, and within two months she could read Jaeger No. 1. The albumen in the urine, the retinal inflammation and the brilliant white spots gradually disappeared until there was no evidence of the condition except a slight mottled appearance about the macula and slight pigmentation where the hemorrhages had taken place. Three years later the patient was in excellent health with normal visual acuteness. Albuminuric retinitis occurs most frequently in chronic interstitial nephritis, and these cases are nearly always fatal. But albuminuric retinitis is met with in all forms of renal disease. In the acute and subacute forms the retinitis gradually subsides as the albuminuria disappears. This favorable result is frequently seen in albuminuria of pregnancy, where the albuminuria is generally transitory. In 85 per cent of the cases of albuminuric retinitis the patient dies within one year, and only 6 per cent live more than two years. Many opthalmologists of large experience have never seen a case that lived over two years. *British Medical Journal*, May 8, 1897.

MEDICINE AND PATHOLOGY.

By Albert Abrams, M.D., Professor of Pathology, Cooper Medical College, San Francisco.

Diseases of the Nose and Throat in Relation to General Medicine.—Dr. F. De Havilland Hall, in his Lettsomian lectures on this subject, enumerates many important diagnostic facts of vital interest to the medical practitioner. He draws attention to the importance of observing the movements of the larynx externally, in cases of dyspnea. Whenever the obstruction is seated at the glottis, it will be seen that the larynx moves up and down with the movements of respiration, and the activity of these movements are in proportion to the urgency of the dyspnea. If the obstruction is in the trachea, these movements do not take place. The possibility of chronic gastric catarrh being kept up by the irritation produced by swallowing fetid secretion from the nose and naso-pharynx, should be borne in mind by the physician. He has noted symptoms of dyspepsia disappear after the nose and accessory sinuses have received attention. F. B. Türck has made a bacteriologic examination of the microörganisms present in cases of chronic naso-pharyngitis and gastritis in the same subject, and has found that they presented identical morphologic and physiologic appearances. Four cases are recorded by him in which treatment of the naso-pharynx cured the stomach also. Laryngismus stridulus, due to over-distension of the stomach or the ingestion of unwholesome food, has been long recognized, and it seems not improbable that the virtue of emetics in these cases is largely dependent on the fact that the spasm of the glottis is relieved as soon as the stomach is emptied of the contents which have caused reflex irritation. Stomach cough is a term often employed by the laity, and like many another popular expression, it contains an element of truth. Dr. Lander Brunton has pointed out that it is just at the place where the respiratory and digestive tracts cross one another, that irritation is most likely to give rise to both coughing and vomiting. A case of Brunton's is cited: "A gentleman suffered from cough, which gave him a good deal of trouble; the back of his pharynx was congested, and I ordered him a gargle. For some time it was not a bit better, and then, for some reason or another, somebody else gave him several blue pills, and the cough disappeared." In diseases of the liver, severe epistaxis is not uncommon. This is especially the case as an early symptom of liver cirrhosis, the bleeding occurring from dilated veins at the posterior part of the nose. In a middle-aged person, the occurrence of epistaxis is almost as suggestive of cirrhosis of the liver as are piles. A case is quoted from Cohn, in which typical attacks of paroxysmal rhenitis were caused by an affection of the biliary passages. A recent development of throat specialism is the doctrine that the varicose condition of the veins at the base of the tongue is one of the objective causes for many subjective throat svmptoms of the nature of globus hystericus, or, as it is designated by the believers in this condition, "faucial," "pharyngeal," and "laryngeal tenesmus." Epistaxis is a frequent symptom of chronic interstitial nephritis, and is occasionally met with in other forms of Bright's disease. The bleeding is dependent upon the altered blood state, changes in the vessels of the Schneiderian mucous membrane, and upon the cardiac hypertrophy and increased arterial tension. The chief importance of nose-bleeding in Bright's disease is from a prognostic point of view; it may be the precursor of a uremic attack, or the next vessel to give way may be one seated in a vital part, as, for instance, the brain. The exact connection between edema of the larynx and Bright's disease, is still under discussion. It may come on so rapidly as to threaten life; tracheotomy should be performed early in these cases, but if possible, subcutaneous injections of pilocarpine should be first tried. In tabes dorsalis, true atoxy of the vocal cords and laryngeal crises occur. The latter are attacks which occur quite suddenly and consist of fits of coughing, resembling whooping-cough. Dyspnea accompanies the attacks, and in exceptional cases, the spasm is so prolonged, that the patient becomes cyanosed, and death has occurred under these circumstances. In labio-glosso-laryngeal paralysis, loss of the pharyngeal and laryngeal reflexes may be an early symptom. Kussmaul reports 2 cases, in which this symptom was present, some months before any paralytic affection appeared. Many cases of reflex epilepsy have been reported cured by intra-nasal treatment. Kyellman has collected 15 cases of epileptiform convulsions which ceased after the cure of the following pathological conditions of the nasal cavities: polypi, foreign bodies, and swelling of the mucosa of the turbinated bones. The neuromimetic conditions affecting the upper air passages are very numerous. It has been stated that a regular attack of hysteria may be produced by the irritation of certain parts of the nasal mucosa, the so-called hysterogenic zones, and that after the application of the galvano-cautery to these areas, the attacks have ceased to occur. The so-called globus hystericus is nothing more nor less than spasm of the pharyngeal muscles. There are numerous observations which show that a cure of the nasal malady has led to a cessation of the symptoms of neurasthemia. Bosworth reports a case of melancholia cured by intra-nasal operation. Prominent among the causes of headache is disease of the nose. In fact, there is hardly any nasal affection but has headache for a symptom. *Meningitis and cerebral abscesses.*—The close proximity of the nasal passages to the base of the brain is often followed by disease of the latter organ. Stoerk has reported 6 cases of purulent meningitis due to nasal affections; in 2 cases, the starting point was syphilitic disease of the nose, in the remaining 4 it was caused by acute suppuration of the nose and accessory sinuses. One of the dangers of plugging the nostril for epistaxis is the possibility of thereby causing meningitis. *Cerebral hemorrhage and epistaxis.*—Whenever the author is called upon to advise in a case of nose-bleeding in a person over 40 years of age, he always thinks of the remarks made by Sir Prescott Hewett: "Severe epistaxis—spontaneously occurring after the middle period of life—what, apparently, could be of so little importance clinically? How little thought, commonly, would be bestowed on nose-bleeding under such circumstances, and yet it is ofttimes the little cloud no bigger than a man's hand." If a person, after the middle period of life, in whom there is any sign of arterial degeneration, consults one on account of epistaxis, there is need of great caution in the treatment to be adopted. The writer knew of one case, in which measures, unfortunately only too effectual, were taken to stop an habitual epistaxis, and in which hemorrhage into the brain proved fatal some months later. If measures be taken to stop the epistaxis, as by application of the galvano-cautery to the bleeding point, the patient should be kept under observation, the diet should be carefully arranged, the amount of butcher's meat diminished, and alcohol almost, if not entirely, prohibited. Great care must be taken to keep the bowels freely moved to prevent portal congestion and diminish arterial tension. While nasal hemorrhage and cerebral hemorrhage are a common result of degenerate vessels and a hypertrophied left ventricle, epistaxis is frequently a symptom of granular kidney; in some of these cases, moreover, there is what Sir William Gull not inappropriately called renal epistaxis—bleeding from the kidneys.—*British Medical Journal*, March 6, 1897.

MENTAL DISEASES AND MEDICAL JURISPRUDENCE.

By A. W. HOISHOLT, M.D., Assistant Physician, State Asylum for Insane,
Stockton. Cal.

Demoniacal Possession.—At the meeting of the New York Neurological Society in February, 1897, PROF. WM. JAMES, of Harvard, read a paper on this subject, in which he said that demoniacal possession was connected with the form of altered personality, known as spirit control. Another form is the transient one of certain dream states of epileptic insanity, described under the name of ambulatory automatism, during which the subject wanders about, remaining in this state sometimes for weeks, after which he has no memory of what has happened during his wanderings. That the public belief in the possession by demons is now obsolete is a strange thing in Christian lands, considering that the Bible is full of this belief, and that every land and every age had exhibited facts on which the belief is founded. The particular form of supernatural origin varied with the traditions and popular beliefs of each country. When the Pagan gods became demons, after the triumph of Christianity in Europe, all possession was looked upon as diabolic. It is now replaced by the thoroughly optimistic belief that changed personality is the spirit of a human being coming to bring messages of comfort from the sunny land. Prof. James said that the unconsciousness is usually ushered in by a more or less pronounced convulsion, the person's character becoming entirely changed in its attitude, voice and manifestations, which after an hour or two passed off, leaving a complete amnesia behind of everything that had occurred; tthe mental condition differing from that of any form of insane delusion, by the person being entirely well in the intervals between attacks. In Japan, where there are a number of persons who cultivate the power of passing into trances, there is a curious superstition that the person afflicted is not affected by a demon, but by a fox. In China there is still a widespread belief that possession by gods and spirits can take place, and a number of cases of demoniacal possession have been reported. In speaking of the witchcraft delusion the author said that he thought the witches were not neuropathic, but that their accusers were. The "demon-diseases," which started the witchcraft delusion, were very common in those days, and were based on any functional neuropathic disease. If there were no obvious physical disorders, and if the symptoms did not yield readily to the usual medical treatment, the case was considered to be one of demon disease. Professor James read from a book, written in 1602, by a French magistrate, a detailed description of a girl possessed with five demons, and the manner in which they came out of her mouth and ran about the fire two or three times before disappearing. The descriptions remind one of the classical hysterical attack: the globus hystericus, the convulsive seizures, etc., the cases being probably instances of imitative hysteria, patterned after the case existing at that time, and varying in different countries with the difference in the psychological surroundings. Dr. Augustin Constance reported an interesting case of demoniacal possession in 1863, in Savoy, France, which began as an epidemic of hysteria among certain children, and was propagated by example until at last a very large number of persons were attacked with all the symptoms of demoniacal possession. A year after the breaking out of the epidemic 110 persons were affected. Dr. Constance examined a number of these individuals, and found them to be suffering from hysterical attacks, brought on by suggestion. The epidemic was broken up by the patients being sent away to other villages. In these attacks there is a marked analogy to the performances of the numerous spiritualistic mediums of the present time. "It would be strange, indeed," Professor James said, "if a phenomenon which had played such a large part in history, should have died out without leaving anything in its place. Medical men should learn from this a certain lesson, *i. e.*, that as our views have become optimistic, instead of pessimistic, the whole thing has become harmless. We live in a day when there is much alarmist writing in psychopathy about degeneration, and the alarming significance of all sorts of symptoms and signs, so that there is danger of drawing the line of health too narrowly."—*Journal of Nervous and Mental Diseases*, May, 1897.

Attack on a Physician in an Insane Asylum.—The noted DR. CHARPENTIER, Superintendent of the Insane Asylum of Bicêtre, Paris, France, came near being murdered on the 26th of January last, by one of his former patients, who entered his consultation room and at close range fired a pistol at him. Dr. Charpentier had a narrow escape, as the ball struck the sturnum without going through it.—*Hospitalstidende*, February 17, 1897.

FORMULÆ.

By H. E. SANDERSON, Ph.B., M.D., Assistant Physician State Asylum for Insane, Stockton, Cal.

Phosphorus Poisoning. — Potass. permanganat. solution, 2 to 4 parts in 100 of water, drinking ¼ to ½ litre at one time, and repeating in a half hour. —*Medical and Surgical Reporter*.

Infantile Colic.—Tinct. lobelia in $\frac{1}{16}$ to 6 drop doses, according to age.—*Virginia Medical Semi-Monthly*

Obstinate Psoriasis.—Oil of copaiba 5 minims, three times a day, is recommended in the *Practitioner*.

Muscular Pains.—Tinct. of cimicifuga is often satisfactory.

Local Analgesia. — Glycerine and guaiacol in equal parts; cover to prevent evaporation.—*College and Clinical Record*.

Hemorrhoids:

Calomel	1 part
Vaseline	9 parts

—*Allgemein med. Central Zeitung*.

Erysipelas.—KOESTER highly recommends plain vaseline. He has thus treated 130 cases. — *Therap. Wochenschrift*.—*Universal Med. Journal*.

Tooth Ache:

Phosphorus	1 part
Expressed almond oil	8 parts

S.—Insert into the affected tooth, on wool, and cover with gutta percha —*Practical Druggist—Pediatrics*.

Urethritis— Acute or Chronic:— G. MÖHLAN, of Buffalo, extols the following:

Antipyrin	gm. 10.0
Tinct. ferri chlor.	10.0
Trit. bene et adde.	
Aq. dest. *q. s.* ad.	gm. 150–250.0

It is said to be non-irritating, antiseptic, and astringent. An Ultzmann 6-ounce syringe, with Mercier catheter, is inserted as far as the prostatic urethra. Three or four syringefuls are used, after previously cleansing the urethra.—*New York Medical Journal*.

Furuncles.—TRENITE recommends B.B.-methyl violet injected into the furuncle; 15 minims of a 2:1000 solution is used.—*Therapeutic Gazette*—*Medical Times and Register*.

METEOROLOGY.

Summary for June, 1897.—*Temperature.*—The normal temperature of the State for June is 70.8°; the average for June, 1897, was 69.8°, a departure from the normal of 1.0°. The maximum temperature was 118°, at Volcano Springs. The minimum, 26°, at Snellins' Ranch. The absolute range for the State was 92°.

Rainfall.—The normal precipitation for the State for June is 0.31 inches; the average for June, 1897, was 0.46 inches, a departure from the normal of +0.15 inches. The greatest monthly precipitation was 5.76 inches, at Fordyce Dam; the least, nothing, at numerous places throughout the State.

Wind.—The prevailing direction of wind was W.S.W.—JAMES A. BARWICK, Director California Weather Service.

California—Tabular Statement for June, 1897.

STATIONS.	TEMPERATURE.						RAINFALL.		Mean Relative Humidity	WEATHER.			WIND.	FURNISHED BY—
	Mean..........	Highest	Lowest....	Mean Highest..........	Mean Lowest..........	Mean Daily Range	No of Days Rain Fell......	Total Rainfall..........		No. of Clear Days....	No. of Fair Days..........	No. of Cloudy Days..........	Prevailing Direction.	
Auburn ....Cal.	70 0	75	45	----	----	----	3	0.17	----	----	----	----	N.W.	Southern Pacific Company.
Berkeley......... “	61.0	85	49	----	----	16.0	4	0 03	83	16	9	5	S.W.	Obs. University of California.
Colfax............ “	65.0	100	43	----	----	----	5	0.08	----	----	----	----	S.E.	Southern Pacific Company.
Coronado........ “	----	----	----	----	----	----	----	----	----	----	----	----	----	Hotel del Coronado.
Eureka........... “	66.0	88	50	----	----	----	0	T	77	10	20	0	S.W.	Weather Bureau Dept. Agr.
Fresno........... “	74.0	105	50	----	----	----	0	T	----	26	2	2	N.W.	“ “ “
Keeler .... “	60.0	104	62	----	----	----	0	0.00	----	----	----	----	S.	“ “ “
Los Angeles.... “	66.0	88	50	----	----	----	0	T	77	10	20	0	S.W.	“ “ “
Monterey .... “	62.0	72	50	----	----	----	3	0.32	----	13	11	6	W.	Southern Pacific Company.
Napa............ . “	66.0	104	44	----	----	----	3	0 46	----	19	7	4	S.W.	Station Napa Insane Asylum.
Oakland .... “	64.0	92	50	75	53	22	3	0 42	----	13	14	3	W.	Chabot Observatory.
Paso Robles.... “	75.0	102	57	----	----	----	0	0.00	----	28	1	1	W.	Agr. Experimental Station.
Red Bluff....... “	74.0	104	49	----	----	----	1	1.25	----	18	9	3	N.	Weather Bureau Dept. Agr.
Sacramento*... “	70.0	99	50	83	57	26	1	0.04	40	19	9	2	S.W.	“ “ “
San Bernardino “	69 0	97	43	----	----	----	0	0.00	----	17	3	0	W.	A. K. Johnson, M. D
San Diego....... “	63.0	70	54	----	----	----	0	T	----	17	11	2	S.W.	Weather Bureau Dept. Agr.
San Francisco.. “	59.0	85	48	----	----	----	3	0.22	----	18	7	5	W.	“ “ “
Santa Barbara.. “	63.0	91	50	71	55	16	0	0.00	74	22	4	4	W.	Hugh D. Vail.
Santa Cruz...... “	61.0	85	41	----	----	----	1	0.10	----	19	5	6	S.W.	W. R. Springer.
Yuma...........A. T.	----	----	----	----	----	----	----	----	----	----	----	----	----	Weather Bureau Dept. Agr.

Blank (----) indicates data missing.

*Humidity at Sacramento at 5 P. M.

Occidental Medical Times.

Communications are invited from all parts of the world. When necessary to elucidate the text, illustrations will be furnished without cost to the author.

Sacramento: August, 1897.

THE COMMENCEMENTS—UNIVERSITY OF CALIFORNIA, MEDICAL DEPARTMENT.

The Commencement Exercises of the Medical Department of the University of California, were held at Berkeley, in connection with those of the academic branches of the University, on May 13, 1897. The degrees were conferred by **Martin Kellogg**, the President of the University, the Hippocratic Oath being, as usual, administered by **Prof. R. Beverley Cole**, President of the Faculty.

Owing to a marked increase in the standard for entrance, and particularly owing to the sudden change from summer to winter sessions, made a few years ago at rather short notice, the graduating class this year was unusually small.

The following are the names of the graduates: Bertha Borchers, B.L.; Holton C. Curl, M.D.; William L. Dunn, B.Sc.; Thomas A. Hickey, Samuel D. Huntington, B.A.; Murdoch McLean, Frank A. McMahon, Louise A. Oldenbourg.

The total number of students in attendance during the past session was 111; the number of matriculates being 63.

NOTES.

Committees of the State Medical Society.

The following are the Standing Committees of the Medical Society of the State of California, for 1897–'98:

Committee on Clinical Medicine, including Diagnostics and Therapeutics—H. L. Pace, Tulare, Chairman; P. C. Remondino, San Diego; George L. Cole, Los Angeles; D. E. Osborn, St. Helena; A. L. Kelsey, Santa Barbara.

Surgery and Clinical Surgery—D. D. Crowley, Oakland, Chairman; Robert A. McLean, San Francisco; Emmet Rixford, San Francisco; T. E. Taggart, Bakersfield; J. L. Maupin, Fresno.

Pathology and Pathological Anatomy—C. W. Murphy, Los Angeles, Chairman; Lula T. Ellis, Los Angeles; A. J. Sanderson, St. Helena; P. King Brown, San Francisco; W. R. Cluness, Jr., San Francisco.

Diseases of the Mind and Nervous System—I. W. Robertson, Livermore, Chairman; H. G. Brainard, Los Angeles; H. N. Rucker, Oakland; Charles Lee King, Pasadena; Leonard Stocking, Agnews.

Medical and Surgical Diseases of Children—H. V. Armistead, Newman, Chairman. A. J. Pedlar, Fresno; Joseph Kurtz, Los Angeles; H. M. Sherman, San Francisco; W. Fitch Cheney, San Francisco.

State Medicine and Hygiene and Adulteration of Goods and Drugs—C. W. Evans, Modesto, Chairman; I. L. Dryer, Santa Ana; E. S. O'Brien, Ione; Asa Clark, Stockton; Louise M. Harvey, Los Angeles.

Gynecology—C. A. Von Hoffman, San Francisco, Chairman; G. P. Reynolds, Alameda; Jas. F. McCone, San Francisco; W. A. Edwards, San Diego; G. W. Otto, Santa Barbara.

Obstetrics and Puerperal Diseases—D. A. Hodghead, San Francisco, Chairman; Walter Lindley, Los Angeles; J. F. Hinckley, Fillmore; Jennie T. Leonard, Merced; H. P. Mathewson, Visalia.

Histology and Microscopy—Charles M. Fisher, Oakland, Chairman; J. U. Hall, Jr., San Jose; R. L. Jump, Diamond; W. N. Sherman, Merced; F. B. Sutherland, San Francisco.

Indigenous Botany, Materia Medica, Pharmacy, and Medical Chemistry—George A. Hare, Fresno, Chairman; T. E. Ellis, Elsinore; Geo. F. Hanson, San Francisco; James R. Medlock, Santa Ana; H. Washington Dodge, San Francisco.

Medical Topography, Meteorology, Endemics, and Epidemics—R. A. Ferguson, Bakersfield, Chairman; Robert F. Rooney, Auburn; W. J. G. Dawson, St. Helena; S. B. P. Knox, Santa Barbara; John C. King, Banning.

Necrology—John H. Love, Ventura, Chairman; H. Bert Ellis, Los Angeles; C. C. Wadsworth, San Francisco; M. F. Price, Colton; C. W. Nutting, Etna Mills.

Prize Essay—Walter Lindley, Los Angeles, Chairman; J. R. Laine, San Francisco; R. F. Rooney, Auburn; David Powell, Marysville; George A. Hare, Fresno.

Dermatology and Venereal Diseases—L. Bazet, San Francisco, Chairman; D. Granville MacGowan, Los Angeles; R. L. Rigdon, San Francisco; M. Regensburger, San Francisco; Stanley Stillman, San Francisco.

Ophthalmology and Otology—Wm. E. Briggs, Sacramento, Chairman; A. B. McKee, San Francisco; A. L. MacLeish, Los Angeles; Fred. Baker, San Diego; Clarena J. Miner, Fresno.

Laryngology and Rhinology—Henry L. Wagner, San Francisco, Chairman; H. Bert Ellis, Los Angeles; George S. Hull, Pasadena; J. A. Black, San Francisco; Aaron Schlors, Stockton.

Medical Jurisprudence—H. E. Sanderson, Stockton, Chairman; Frank Rattan, Antioch; H. J. B. Wright, San Jose; A. M. Gardner, Napa; A. J. Crane, Santa Ana.

Medical Education and Medical Legislation—Charles A. Rogers, Bakersfield, Chairman; J. H. Utley, Los Angeles; A. H. Pratt, Oakland; D. B. VanSlyck, Pasadena; H. D. Lawhead, Woodland.

Publication—A. P. Woodward, San Francisco, Chairman; D. A. Hodghead, San Francisco; Geo. H. Evans, San Francisco; W. F. Cheney, San Francisco; A. H. Taylor, San Francisco.

Executive Committee—Henry Gibbons, Jr., San Francisco, Chairman; Chester Rowell, Fresno; Wm. LeMoyne Wills, Los Angeles.

Committee of Arrangements—A. J. Pedlar, Fresno, Chairman; W. T. Maupin, Fresno; Clarence J. Miner, Fresno; George H. Aiken, Fresno; E. C. Dunn, Fresno.

Special Committee on Increase of Membership in the Society—Jas. H. Parkinson, Sacramento, Chairman; R. H. Plummer, San Francisco. G. W. Davis, San Francisco.

SOCIETY PROCEEDINGS.

SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Regular Meeting, June 8, 1897.

The President, F. B. CARPENTER, M.D., in the Chair.

New Members.—KATE OVERACKER, M.D., and F. R. STARR, M D., were duly elected members of the Society.

DR. JULIUS ROSENSTIRN reported some cases of "Gastro-Enterostomy," "Cholecystotomy," and "Choledochotomy," exhibiting one of the cases and some of the specimens.

DR. DUDLEY TAIT: I am very glad to hear these cases reported. Physicians have made no steps during the past five years in treating these conditions, while surgeons have made great strides. From the pathological side, the doctor's paper is not complete. While the stone is a great factor, the principal one is the infectious element. Stones are quite frequently found *post-mortem*, that have never caused any trouble during life. In the second case reported, the median incision was used, and the doctor said he had great difficulty in handling the stone in the common duct. This is explained by the incision. It is better to make the opening on the border of the rectus muscle. In the last case mentioned, it seems strange that so large a tumor could not be felt.

DR. C. G. LEVISON: This case brings to mind one that occurred to me recently. It was a case of laparotomy, which, two days later, developed a temperature of 105° F., with a pulse of 160, and vomiting, or rather regurgitation, of a coffee-ground fluid. It was thought best to open the abdomen, but the stomach was washed out first, and the temperature fell to 100° and the patient recovered. It was evident that there had been a generation of toxines in the stomach.

DR. ROSENSTIRN, in replying to Dr. Tait, said: As to the infectious element, I said at the outset that the subject would be dealt with only from a surgical standpoint. As to the incision, many prefer to open along the lateral border of the rectus. I took the median incision: (1) Because we do not get a muscular cicatrix; we have perfect union. (2) Because I do not think that we obtain a larger field by the other incision. The duct is extremely deep and hard to get at, especially if adhesions are present, and pull down on it. This incision is not without precedent. One surgeon who has performed the operation 27 times, always uses it. As to the tumor, it is often hard to locate a tumor of the duodenum or of the posterior part of the stomach, which only shows a hardening. There is always tension at the insertion of the rectus and of the internal and external obliques. The patient was examined, under chloroform, and by Drs. Fehleisen and Jellinek, as well as by many of the best men here, and a tumor was not found. If a tumor can be felt in the stomach, it is generally too late to operate. The time for the surgeon is when the tumor can be felt. Generally, when you can make an absolute diagnosis, a radical operation is impossible. I remember a case that was sent to me from Sausalito, with a diagnosis of chronic gastritis. On washing out the stomach the same condition was found, and, on further careful examination, by others, as well as myself, no tumor could be felt. The patient accepted the advice of not undergoing an exploratory incision. Two years later he died, and the autopsy revealed a large cancer. Now, if at first, an operation had been performed, life would have been prolonged for a few years. Of course, this is not always the case, but the mere fact that it is possible, should speak for it, and encourage the patient to submit to an exploratory incision.

MEDICAL NEWS.

LICENTIATES OF THE BOARD OF EXAMINERS.

At a meeting of the Board of Examiners, held July 15, 1897, the following were granted certificates to practise medicine in this State:

Herman S. Bissey, Philadelphia, Pa.; Med Dept. Univ. Pennsylvania, Mar. 15,'80.
Alfred Bray, San Francisco; Trinity Coll.. Ontario, Canada, May 14,'75.
Gustave E Bouere, Portland, Or.; St. Louis Med. Coll, Mo., Mar. 20,'91.
E. R. Chadbourne, Pasadena; Coll. Phys. and Surg., New York, Feb. 28,'97.

Chung Chi Chan, San Francisco; Omaha Med. Coll., Neb., Apr. 22,'97.
Albert M. Clark, Dunnville, Canada; Univ of Toronto, Canada, Nov 13,'91.
Chas. P. Elwert, San Francisco; Bellevue Hosp. Med. Coll., N. Y., Mar. 30,'91.
A. B. Gilliland, Anderson; Med. Dept. U. S. Grant Univ, Tenn., Mar. 13,'94.
Clifford E Henry, Los Angeles; Jefferson Med. Coll., Pa., May 15,'96.
Hugo A. Kiefer, Los Angeles; Med. Dept. Univ. Pennsylvania, June 9,'97.
Geo. G. Koeler, Portland, Or.; Coll. Phys. and Surg, N. Y., June 13,'89,
Arthur A. Libby, Pasadena; Coll. Med., Univ. Southern California, June 3,'97.
E. F. P. Lingenberg, San Francisco; Univ. Berlin, Germany, Aug. 10,'92.
Harrie A. Littlefield, Portland, Or; Med. Dept. Univ. Oregon, Apr 5,'77.
Belle J S. McDonald, Portland, Or.; Med. Dept. Univ. Willamette, Or., April 11,'86.
Joseph I. Manson, San Francisco; Coll. Med., Syracuse Univ. N. Y., June, 10,'97.
Geo. E. Mayhew, Red Bluff; Coll. Phys. and Surg., Chicago, Ill, Apr. 20,'97.
J. V. D. Middleton, San Francisco; Med. Dept. Univ. Georgetown, D. C, Mar. 15,'55.
Jas. P. Miller, Sebastopol; Louisville Med. Coll., Ky., Mar. 3, 92.
W. T. Miracle, Long Creek, Or.; Med. Dept. Univ. Oregon, Apr. 1,'96.
Arthur B. Nelson, San Francisco; Louisville Med. Coll Ky., Mar. 25,'96.
Phillipp Newmark, Los Angeles; Univ Berlin, Germany, Aug. 13,'91.
Mary L. Noble, San Jacinto; Med. Dept. Univ. California, May 13.'96.
Wm. H. H. Palmer, Nipones; Med Dept. Willamette Univ., Or., Apr. 7,'89.
Andrew C. Panton, Portland, Or.; Univ. Toronto, Ontario, Canada, June 8,'82.
Jas. J. Panton, Portland. Or.; Long Island Coll. Hosp, N. Y., Mar. 21.'94.
Jas. M. Popp, Braddock, Pa., Western Penn. Med. Coll., Pa., Mar. 25,'97
Homer Rodgers, Bakersfield; Coll. Med., Univ. Southern California, June 3,'97.
Harry C. Sherman, Los Angeles; Coll. Med., Univ. Southern California, June 3,'97.
Arthur J. Simpson, Chillicothe, Mo; Univ. Med. Coll., Kansas City, Mo, Mar. 20,'95.
Henry S. Strickland, Olympia, Wash.; Coll. Phys. and Surg., New York, Mar. 1,'77.
E. C. Surman, San Francisco; Sup. Bd. of Ex., Berlin, Prussia, Nov. 18,'92.
Edwin L. Vaughan, Los Angeles; Coll. Med., Univ. Southern California, June 3,'97.
Wm. L. Wood, Portland, Or.; St. Louis Med. Coll., Mo., Mar. 4,' 86

REFUSED.

F. A. Winneman; school not recognized.

CHAS. C. WADSWORTH, Secretary.

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the U. S. Army (Division of the Pacific) from June 20, 1897, to July 20, 1897.

Major William H. Corbusier, Surgeon, will be relieved from duty at Fort Monroe, Va., and is ordered to Angel Island, California, relieving Major Benjamin F. Pope, Surgeon.

Major Pope, upon being thus relieved, is ordered to Columbus Barracks, Ohio, for duty relieving Captain James. E. Pilcher, Assistant Surgeon.

First Lieutenant William E. Richards, Assistant Surgeon, is relieved from duty at Fort Grant, Arizona, and ordered to report September 20, 1897, for duty at Fort Apache, Arizona.

First Lieutenat William E. Lewis, Assistant Surgeon, upon the arrival of Lieutenant Richards at Fort Apache, Arizona, is ordered to Fort McPherson, Georgia, for duty.

Captain Charles M. Candy, Assistant Surgeon, is relieved from duty at Washington Barracks, D. C., and ordered to Fort Mason, Cal., relieving Captain George M Wells, Assistant Surgeon.

Captain Wells, on being thus relieved, ordered to Fort Ringgold, Texas, for duty.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine Hospital Service (District of the Pacific) from June 20 to July 20, 1897.

J. M. Gassaway, Surgeon, upon being relieved from duty by Past Assistant Surgeon P. C. Kalloch, to proceed to San Francisco, Cal, and assume command of service.

John Godfrey, Surgeon, upon being relieved by Surgeon J. M. Gassaway, to proceed to Detroit, Mich., and assume command of service.

ITEMS.

Dr. E. S. O'Brien, having accepted the position of Superintendent of the Preston School of Industry, has removed from Merced to Ione, Cal.